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AIR CONDITIONING  
REFRIGERATION  
Industry

# NEWS

May 7, 1956

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## Inside Dope

By GEORGE  
F. TAUBENECK



Learn to live and laugh —  
thus delay your epitaph

**Story of the Week**  
**Industry Needs a**  
**Yardstick NAME Which**  
**Buyers Understand**  
**How About**  
**'Comfort Degrees?'**  
**Phooey to the Saturday**  
**Evening Post**  
**Another Boo for**  
**Post Scaremongers**  
**Air Conditioning Has**  
**Become a Habit**  
**It Saves Budget Money,**  
**Too, In the Home**

### Story of the Week

Visiting Englishman fell into the lap of a pretty girl on a Fifth Ave. bus. He apologized. She quipped: "You must be a Laplander!"

That joke tickled his funny-bone. Back home in London he recounted the adventure to stalwarts of his club thusly:

"And then the jolly American girl said to me, 'I say, you must be an Eskimo.'"

**Industry Needs a**  
**Yardstick NAME**  
**Which Buyers**  
**Understand**

Ever since AIR CONDITIONING & REFRIGERATION NEWS "cried havoc" about dishonest ratings of air conditioners, conscientious forces within the industry have been adding their "yoicks," and darting into the fray. And that's good.

ARI, the Better Business Bureau, responsible representatives of substantial manufacturers, contractor associations, and even a few public utilities have joined the battle for integrity of comparisons.

At the local level, though, air conditioning promotion still can be an unconscionable mess, as this letter testifies:

Western Auto Supply Co.  
Kansas City 8, Mo.

Editor:

Apparently we do not believe our own words, when, as an industry, we all pledge to describe the size of our window air conditioners by the nominal pump size in horsepower. Sure, the engineers got the change in the specifications, and it appears in manufacturer's general literature. But, when the ad writers (who must have been on vacation when the pledging took place) got going, somehow all the noble aims evaporated.

Let's not pretend that retail advertisements are all "locally prepared." The fact is that we all are mighty proud of our ad mat services, and this dumps

(Concluded on Page 18, Col. 1)

## How You Doing With Uncle Sam?

Are you interested in getting any of the air conditioning and refrigeration work that is offered by the many divisions of the Federal government?

This is the time of year that government procurement of new equipment, and repair and replacement of existing systems is being stepped up. This has been noticeable in the increasing size of the "Government Contracts" section published each week in the NEWS. In this issue you'll find it on page 51.

## American-Standard Offers 6 New Air-Cooled Units

ELYRIA, Ohio—Six new air-cooled units designed to meet the requirements of the rapidly-expanding market for waterless air conditioning systems, plus a new horizontal winter air conditioner, have been introduced by the Air Conditioning Div. of American-Standard.

Additions to American-Standard's air-cooled line include a 5-hp. outdoor condensing unit similar to the 2 and 3-hp. models manufactured by the

(Concluded on Page 8, Col. 1)

## Refrigerator, Freezer Sales Open Slower Than '55, NEMA Reports

NEW YORK CITY—Household refrigerator and freezer sales started out 1956 on a slower pace than in 1955, figures released recently by the National Electrical Manufacturers Association indicated.

Reports from 12 refrigerator manufacturers showed January sales 24% below the first month of 1955 and February sales down 12% from February a year ago.

Nineteen manufacturers of

(Concluded on Page 4, Col. 4)

## Kalamazoo Offers Model Code To Cover Many 'New Phases' of Industry Activity

KALAMAZOO, Mich. — New provisions on room air conditioning, the heat pump, electric panel heating, and truck refrigeration that, so far as they know, do not appear in any local code, are being worked into a new model code by A. Fred Madaus, mechanical equipment inspector for the city of Kalamazoo, and Glen W. Rynbrand, heating and air conditioning contractor here.

Currently making suggested changes to a proposed draft, the pair are trying to write the code so that a mechanic can understand it and so that an inspector will not have to guess at the interpretation of the wording.

Their ambition is also to make

## Bush Co.-Dunham Merger Planned

WEST HARTFORD, Conn.—Consolidation of the C. A. Dunham Co., Chicago, and The Bush Mfg. Co. here into a new company has been favorably considered by the boards of directors of both companies, it was announced here recently.

Under the proposal, a new Connecticut corporation to be known as Dunham-Bush, Inc. would be formed. Upon completion of the preliminary steps and development of the final program, the plan will be submitted to the stockholders of both companies for approval.

Under the proposal, H. S. Marshall, now president of C. A. Dunham Co. would become chairman of the board. Cecil Boling, president and treasurer of Bush, will become president and treasurer of Dunham-Bush, Inc.

C. A. Dunham Co. products consist of steam and hot water heating equipment and specialties. Bush Mfg. Co. produces air conditioning and refrigeration equipment and components.

## Westinghouse Unit Converts Water-Cooled System to Air-Cooled

NEW YORK CITY—Plans for a nationwide promotion in the air conditioning market were presented by Westinghouse Electric Corp. at a meeting held here recently for distributors in the New York-New England area.

The distributors also previewed a new condensing unit designed to convert water-cooled air conditioning units to air-cooled operation and a complete new line of gas and oil-fired residential heating units.

The condensing unit, called the "CAC," is suitable for use with residential and commercial packaged air conditioners in 2, 3, and 5-ton capacities, Bruce D.

(Concluded on Page 4, Col. 1)

## U. S. Weather Bureau Sees a Warm May

WASHINGTON, D. C.—The air conditioning and refrigeration industry should fervently hope that the U. S. Weather Bureau's forecast for the month of May is as accurate as it was for April.

For April, the Weather Bureau had predicted colder and wetter than normal conditions—and that's exactly what happened. For May it predicts higher than normal temperatures in much of the heavily populated areas, with rainfall near normal except for a few areas in the Midwest and Far West.

"Much above" normal temperatures are predicted for most

(Concluded on Page 4, Col. 1)

## Year-Round System Set for 1,152-Unit Austin Project

AUSTIN, Texas—Hailed as the largest home air conditioning project in the world, Barton Hills subdivision here will have each of its 1,152 homes equipped with a Typhoon "Weather-Selector" year-round unit, Don V. Petrone, president of Typhoon Air Conditioning Co., announced recently.

The Weather Selector system to be installed consists of a 95,000 B.t.u. input gas-fired, forced warm air furnace and a 3-ton capacity cooling coil connected to an outdoor air-cooled refrigeration condensing unit.

The system is designed so that it can be completely—except for the condensing unit—installed in a closet 41½ in. deep, 33 in. wide, and 8 ft. high.

Height of the furnace is 70½ in. including cooling coil so there is room for ductwork connections on top of the cooling

(Concluded on Page 49, Col. 4)

## York System Heats Using Freezing Air

**Heat Pump 'Practical' For All Conditions**  
**By Compound Compression**

NEW YORK CITY—The first "practical" system of heating a building without fuel by using below freezing outside air as a heat source is claimed by York Corp. in announcing a new type heat pump air conditioning system.

At a press conference here, Ray K. Serfass, a vice president of the corporation and general manager of York's Industrial Div., said that York had applied for patents on a heat pump system capable of heating a building using freezing or below freezing winter air processed by the same refrigeration system used to cool the building during the hot summer months. No supplementary heating system is necessary.

Serfass said that the first application of the new system is presently functioning in a

(Concluded on Page 51, Col. 1)

## Albert M. Gibson Dies Of Heart Attack at 31

GREENVILLE, Mich.—Albert M. Gibson, 31-year-old executive vice president of Gibson Refrigerator Co. here, died unexpectedly of a heart attack last Wednesday while honeymooning in Rome, Italy.

Word of Gibson's death was received from his father, C. J. Gibson, Sr., former president of the refrigeration equipment manufacturing company, who had flown to Europe the previous week to visit his son and daughter-in-law.

(Concluded on Page 4, Col. 2)

## BEHIND PAGE ONE . . .

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## ROTARY SEAL

### Replacement Units

Available in a wide size range for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerators.

EASY TO INSTALL \* ECONOMICAL



## Chicago Conference To Eye Heating, Cooling Trends, Problems May 24-25

CHICAGO—Present problems and future trends in air conditioning and heating will be discussed at a two-day technical conference to be held May 24 and 25 at the Edgewater Beach hotel here.

This, the first such conference ever sponsored by the National Warm Air Heating and Air Conditioning Association, will be an annual affair, it was announced.

In addition to taking up every-day problems like balancing systems, pressure losses in fittings and diffusers, heat gain in ducts, and venting of furnaces, conference speakers will delve into nuclear energy for residential air conditioning, solar energy, and the probable impact of the heat pump on

residential air conditioning.

Thirteen papers are scheduled for presentation at four technical sessions.

Registration fees have been established at \$20 per person for association members, \$30 for non-members.

Complete program for the conference is as follows:

### THURSDAY, MAY 24

First technical session (morning).

"The Association, Its Manuals and Committees," by G. W. Denges, vice president, Williamson Co., president of National Warm Air Heating and Air Conditioning Association.

"The Application and Utilization of Nuclear Energy in Residential Heating and Air

Conditioning," by Dr. Finn J. Larsen, director, Research Institute, Minneapolis-Honeywell Regulator Co.

"How Research is Used in Manual Development," by Lorin G. Miller, dean emeritus, Mechanical Engineering Dept., Michigan State University.

"Pressure Losses in Fittings and Diffusers," by M. V. R. Rao, research assistant in Mechanical Engineering, University of Illinois.

Second technical session (afternoon).

"System Balancing for Year-round Air Conditioning in Research Residence No. 2," by J. R. Wright, research assistant in Mechanical Engineering, University of Illinois.

"Balancing Year-round Air Conditioning Systems in Two-Story Residences," by Donald R. Bahnfleth, research associate in Mechanical Engineering, University of Illinois.

"Heat Gain in Air Condition-

ing Ducts," by C. W. Nessel, chairman, Field Investigation Committee, National Warm Air Heating and Air Conditioning Association.

### FRIDAY, MAY 25

Third technical session (morning).

"Solar Energy as a Source for Heating," by A. L. Heessel-schwerdt, associate professor of Mechanical Engineering, Massachusetts Institute of Technology.

"Physiological Adjustments, Environment and Comfort," by M. K. Fahnestock, director, Physical Environment Unit, University of Illinois.

"Air Conditioning Using Gas as the Energy Source." (Speaker to be announced).

Fourth technical session (afternoon).

"Venting a Furnace," by R. B. Engdahl, chief of Fuels and Air Pollution Research, Battelle Memorial Institute.

"The Impact of the Heat Pump in Residential Air Conditioning," by S. F. Gilman, research section head, Carrier Corp.

"The Value of Research to the Heating and Air Conditioning Industry," by Frank J. Nunlist, Jr., vice president, Mueller Climatrol Div., Worthington Corp.

## House Scotches Plans For 'Piecemeal' Cooling Of Federal Buildings

WASHINGTON, D. C.—Plans to air condition Federal court rooms and offices in 17 Texas cities and many other places throughout the country were turned down by the House Appropriations committee.

A request from the judiciary for \$1.5 million in air conditioning funds was denied by the committee because the General Services Administration objected.

Even though "recognizing the need for efficient and comfortable working conditions in all the courts," the committee pointed to GSA's position on the matter when it refused funds for the work.

The government's housekeeping agency advocated a long-range program of "basic" air conditioning of entire Federal buildings rather than an "interim," piecemeal, room-by-room manner which would be "uneconomical."

This basic approach would take longer but cost less in the long run and be more efficient, GSA said.

The air conditioning committee of the Judicial Conference of the U. S. disagreed during committee hearings.

They pointed out that GSA's basic air conditioning plan would run to \$600 million over a long time. Whereas the \$1.5 million sought for so-called piecemeal comfort, especially in the south where extreme heat "cuts judicial efficiency," would provide immediate relief, speed the judicial process, and amount to less than 2% interest on the larger sum asked by GSA.

Both Dallas and Fort Worth offices for court personnel were on the list of Texas projects to be air conditioned if the request had been approved, it was explained.

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in  
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temperature

LOWEST in operating costs, too!  
Kramer's new "L" THERMOBANK saves important dollars every day it works for you. It's the only LOW temperature automatic hot gas defrost system that works trouble-free at any temperature level, from plus 32° to minus 75°. Let us prove that it costs less to own the best!

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**THERMOBANK**

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Trenton 5, New Jersey



# *Copeland* distribution policy nets profits for wholesalers, dealers, manufacturers

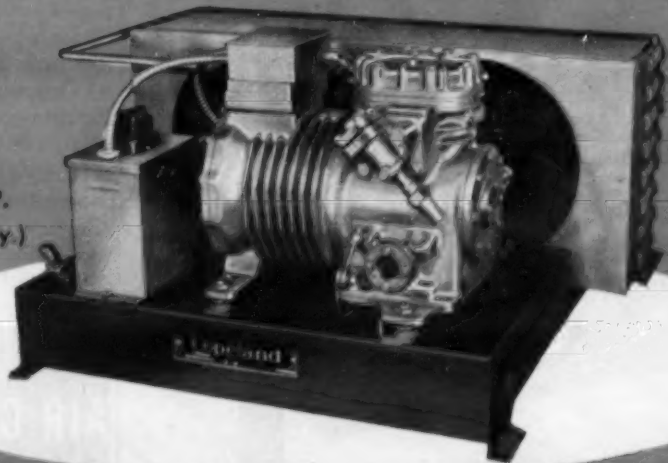


An unequalled network of dealers and wholesalers is the core of Copeland's dependable service and supply system. Copeland dealers and wholesalers form a potent sales team, backed up by a sound service and distribution policy. Field stocks of motor compressors and condensing units worth over \$3,500,000 plus wholesalers' years of experience with Copeland equipment assure manufacturers of prompt, efficient service . . . keeps customers sold on Copeland and Copeland-powered equipment.

The absolute dependability of Copeland compressors, 25,000 sales-conscious dealers and Copeland's widely-heralded in-or-out-of-warranty service protection builds sales for wholesalers of new parts and replacement equipment . . . offers manufacturers a penetrating sales help in developing your share of the booming refrigeration and air conditioning market.

## **COPELAMETIC** THE *Accessible* HERMETIC

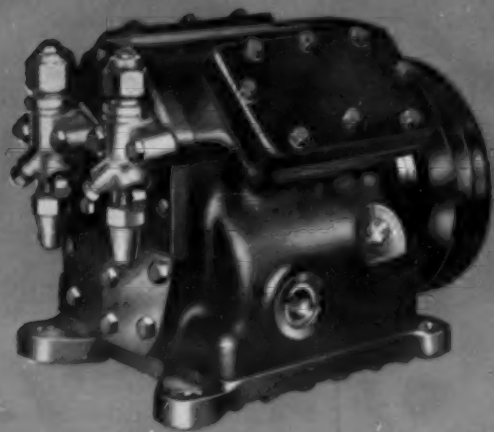
The industry leader for rugged dependability. Models for every application. Freon-12 in ¼ to 7½ H.P.; Freon-22 in 2 to 10 H.P. (High Temperature Only.)



The industry's newest welded hermetic:

## **COPELAWELD**

provides heavy duty performance at low current consumption. Freon-12, ½, ¾ and 1 H.P. Freon-22 models, ½ through 1½ H.P.



## **automotive and truck COMPRESSORS**

High-speed belt-driven compressors designed specifically for the critical needs of truck and auto air conditioning and refrigeration.



## **BELT-DRIVEN condensing units**

Superior-engineered units for every refrigeration need. Remote and self-contained, water and air-cooled models available.

SINCE 1918

***Copeland***  
REFRIGERATION

WRITE FOR SPECIFICATION AND PERFORMANCE DATA

**CORPORATION, Sidney, Ohio**



## Westinghouse Unit--

(Concluded from Page 1, Col. 3)  
Henderson, vice president in charge of the air conditioning division, said.

The heating units range in capacity from 60,000 to 200,000 B.t.u. and include 16 gas-fired models and seven oil-fired models. All can be adapted for year-round air conditioning by adding a packaged cooling unit which uses the same ductwork as the furnace, Henderson said.

## Weather Forecast--

(Concluded from Page 1, Col. 4)  
of the Southeast and a good part of Texas, for the 30-day period in May. Higher-than-normal temperatures is the prediction for much of the East, North Central, and Southwest. "Near normal" is the forecast for parts of the Midwest and Plains. This forecast is generally in

line with the long range weather forecast for the 1956 air conditioning season prepared by Weather Trends, Inc. and published in the March 12 issue of the AIR CONDITIONING & REFRIGERATION NEWS.

## A. M. Gibson Dies--

(Concluded from Page 1, Col. 5)

Young Gibson joined the company in 1949 and was vice president in charge of defense products until Feb. 22 of this year when he was elected executive vice president and secretary of the company.

Gibson stockholders met April 25 to approve a merger of the firm with Hupp Corp., Cleveland, as reported in March 19 issue of AIR CONDITIONING & REFRIGERATION NEWS. The report that Hupp bought controlling interest of Gibson was carried in the Feb. 20 issue of the NEWS. The firm operates as a division of Hupp.

## Housewives Declare for NEMA Reports-- Air Conditioned Home

WASHINGTON, D. C. — A "cross-section" group of ten women taking part in Federal Housing Administrator Albert M. Cole's "hundred housewives conference" listed air conditioning as one of the features desired in a home.

Cole invited the women to the conference to help him plan houses that would be good loan risks.

Voting in favor of a traditional house—as against contemporary—but one story with low-pitched roof and overhanging eaves, the latter group said the house should be air conditioned.

Also favored were a larger hot water heater and many more electric outlets for modern appliances—at least seven double plugs in the kitchen.

(Concluded from Page 1, Col. 2)  
home and farm freezers reported their sales down 10% from 1955 in both the first two months.

For refrigerator manufacturers, sales within the United States tumbled the most, while sales to Canada actually gained sharply over last year. Sales to other foreign countries were down slightly in January but up in February.

Domestic sales were down 25% and 15%, respectively, in January and February. Refrigerator sales to Canada were up 31% and 90%. Sales to other foreign countries were down 5% in January and up 22% in February.

For freezers, domestic sales were down 11% in January and 10% in February. Sales to Canada were down 16% and 18%, respectively.

## Carrier Div. Appoints Kehoe as Aide, Meling 'Weathermaker' Chief

SYRACUSE, N. Y. — Two executive appointments within Carrier Corp.'s Unitary Equipment Div. were announced recently by Russell Gray, vice president and general manager of the



A. E. Meling  
division.

Burton T. Kehoe is appointed assistant to the general manager, reporting to Gray. Arthur E. Meling is named manager of the division's newly created "Weathermaker" department which consolidates the residential and self-contained units department.

Kehoe joined Carrier in 1948 as general attorney of the firm. In 1953, he was named manager for Carrier's residential air conditioning department.

Meling is one of the pioneer salesmen of the air conditioning industry, with almost 30 years of experience in his field.

In 1946, he returned to Carrier headquarters in Syracuse, where he was named product manager for packaged air conditioning equipment. Prior to his new appointment he served as manager for the Unitary Equipment Div.'s self-contained equipment department.

Active in various sections and committees of the Air-Conditioning & Refrigeration Institute, Meling is also the author of numerous articles on packaged air conditioning.



B. T. Kehoe

# TWO TO FIFTY

## LARKIN COOLING TOWERS NOW AVAILABLE IN 18 MODELS— 2 TO 50 TONS CAPACITY



### Success is Built On These Features

- All models available with propeller fan. Centrifugal blower optional on all models through 20 tons
- Wetted surfaces are of all-heart redwood, with nailless, interlocked construction, and are easily removed
- More wetted surface assures conservative ratings
- Bolted construction—unit is easily dismantled in the field all the way down to the sump
- Panels are 16-gauge and sump is 12-gauge steel
- Entire unit finished with epon base, zinc-chromated primer, and two coats of melamine baked-on enamel
- Mastic-coated interior
- Intake screen available as optional equipment
- Two- and three-ton models with fan have direct-drive, totally-enclosed motors. All other models are belt-driven with drip-proof motors

- Propeller fan and blower assembly are easily inter-changeable in the field
- Centrifugal blowers have self-aligning graphited bronze sleeve bearings mounted on outside for easy lubrication
- Belt-driven propeller fans have oil-impregnated bronze bearings with oil line and cup for easy oiling
- Stainless steel shafts on belt-driven propeller models
- Blowers and propeller fans are hot-dip galvanized and dynamically balanced after fabrication
- All-bronze float and float valve
- Gravity-type distribution basin—low pumping head over tower
- Distribution basin cover supplied as standard equipment
- Water outlet in sump has large strainer and anti-cavitation plate, easily removed for cleaning

From every corner of America came praise for the LARKIN Water Saver Cooling Tower. "It's great—so great that we want the same thing in larger capacities."

Here it is. The LARKIN Water Saver is now available in 2, 3, 5, 8, 10, 16, 20, 25, 30, 40, and 50-ton models. On the larger models, you'll find

the same fine features that made the two-through-twenty series a smashing success.

And remember, the LARKIN Water Saver is also a money-saver—sells at a price that gives you a competitive edge. It will pay you to get in touch with your wholesaler now, or write us for additional information.



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## 1/2 MILLION AIR CONDITIONERS are ready to be TRADED IN



The BLUE BOOK OF AIR CONDITIONING gives you information on TRADE-INS +

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You Also Get The Facts On:  
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## Kelvinator 6 Mos. Appliance Production Up 85,474 Units, Commercial 86,857

DETROIT—American Motors had a net loss of \$827,555 in the six months ended March 31, 1956 after realizing a non-recurring profit of \$7,141,920 through the sale of stock in Ranco Inc., George Romney, president, reported. The company had a net loss of \$6,114,479 in the corresponding period last year after a tax recovery of \$6,344,000.

A total of 346,279 household appliances were produced during the six months this year compared with 260,805 in the like period a year ago, a gain of 33%. Commercial appliance output was 157,958 units against 71,101, a gain of 122%, it was pointed out.

Romney also reported the corporation's working capital at \$60,800,000 on March 31, com-

pared with \$62,400,000 last Sept. 30. This is after major capital expenditures in connection with the completely new 1956 Rambler line with its new overhead valve 6-cylinder engine, as well as a new V-8 engine introduced last month in Nash and Hudson models.

Romney attributed the loss for the half-year to high costs incurred in advancing the introduction of the 1956 Rambler and putting it into volume production quickly, and to the let-down in industry retail car sales during the past three months of this year.

The corporation's sales were \$15,006,212 greater for the six months ended March 31, 1956 than a year ago. They totaled \$225,919,280 against \$210,913,068.

## Westinghouse Ships \$225,365,000 of Goods In First Quarter

NEW YORK CITY—Despite the strike at 40 of its plants during all but 10 days of the first quarter, Westinghouse Electric Corp. shipped \$225,365,000 worth of products and booked more orders than were booked in the first quarter of 1954, President Gwilym A. Price reported.

The strike, nonetheless, resulted in a net loss during the first quarter of \$18,575,000.

Price noted that despite the strike, the net sales billed total in the first quarter of 1956 was exceeded in only seven other years in the company's 70-year history. The net sales billed of \$225,365,000 compared with \$367,705,000 in the strike-free first three months of 1955.

## Air Conditioning Retail Advertising, Selling Promotion Guide Issued

NEW YORK CITY—Highlighting accepted procedures for promoting air conditioning, major appliances, and other home furnishings classifications, the Association of Better Business Bureaus has published a revised "Guide for Retail Advertising and Selling."

Included in the BBB primer are interpretations of specific codes of behavior for individual industries.

The guide lists trade terms and shows how they may and may not be used. Also included are do's and don'ts of comparison price advertising in this first revision since 1950.

Price is \$3.50 from association headquarters, 723 Chrysler Bldg., New York 17, N. Y.

## Cory Sales Balloon 263% In First 3 Mos.

CHICAGO — J. W. Alsdorf, president of Cory Corp., has reported that sales of Cory and its subsidiaries for the first quarter of 1956 were \$13,693,304, compared to \$3,775,501 for the first three months of 1955.

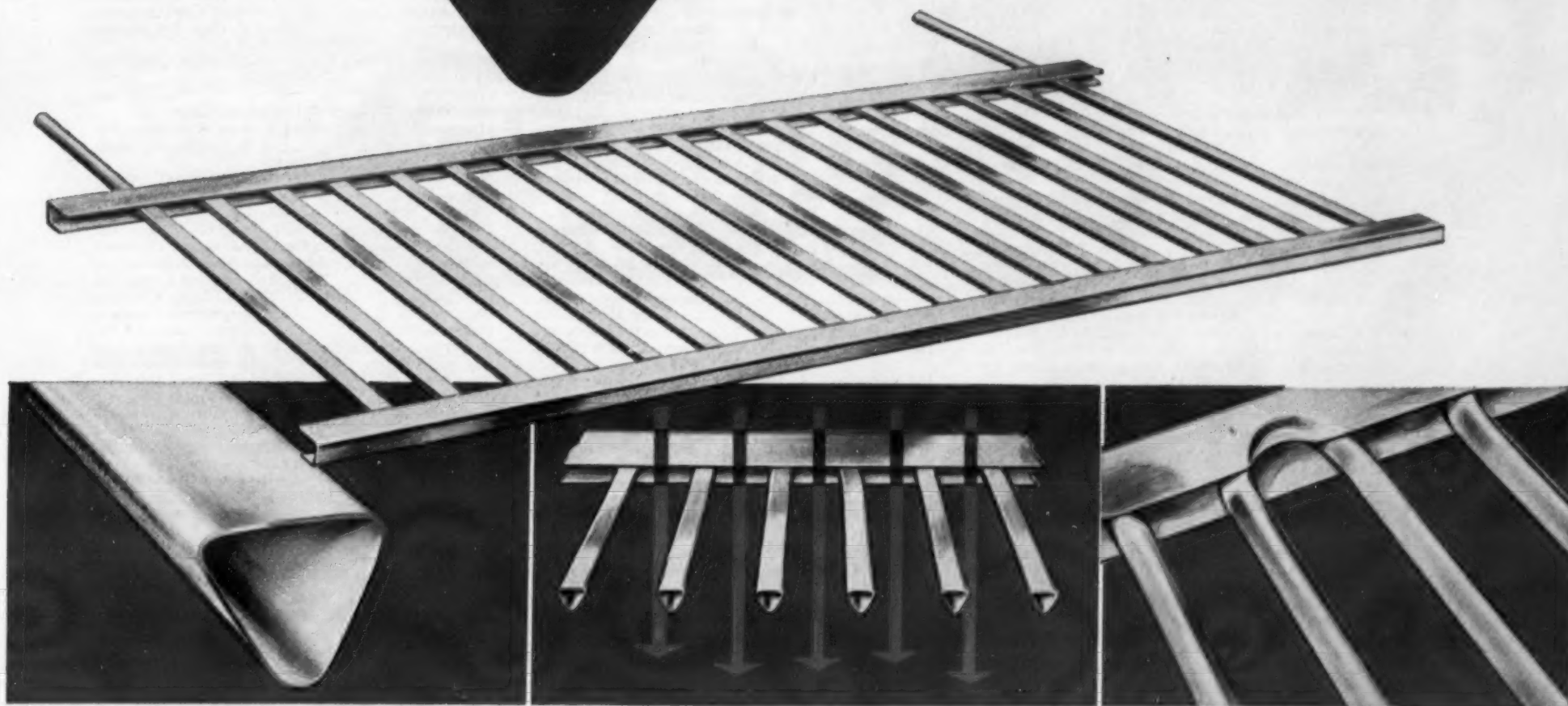
This represented an increase in sales of \$9,917,803, or approximately 263%.

Net income rose to \$476,701, or 74 cents per share, compared to 1955 first quarter net income of \$110,605, or 17 cents.

Alsdorf commented that the principal reasons for the increases in sales and earnings were increased sales and manufacturing activity at its recently acquired division, Mitchell Mfg. Co., producer of central system and room air conditioners, as well as the increase in volume at Fresh'nd-Aire Co. Div.

# NEW TRIANGULAR TUBE SHELF\* by BOHN

offers 3 big advantages at lower cost



### GREATER PRIMARY SURFACE

Since the shelf itself is all primary surface, faster freezing and faster defrosting result.



### BETTER AIR CIRCULATION

Open construction allows air to circulate freely—providing more efficient freezing and more even temperature.



### GREATER RIGIDITY

Tubing construction takes greater weight and strains—in assembly and in use—without bending or buckling.

TRIANGULAR ALUMINUM TUBING makes Bohn's new freezer and freezing compartment shelf unique. The flat side of the extruded triangular tubing forms a level shelf surface. The edges are rounded for easier cleaning and the entire unit can be anodized in any desired color. What's more, Bohn's new Triangular Tube shelf costs less than other types. For complete details, contact your Bohn representative.

\*Patent applied for

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TUBING  
CONNECTORS  
EVAPORATORS

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Milwaukee • Minneapolis • Moline • New York • Philadelphia • Rochester • St. Louis

For more information about products advertised on this page use Information Center, page 32.



# When it comes to FIGURES!

## THE BRUNNER WHOLESALER TEAM

**ALABAMA**  
BIRMINGHAM... Budlock Refrigeration Supply Co.  
MONTGOMERY... Nolin-McInnis Company

**ARKANSAS**  
LITTLE ROCK... Central Supply Company  
LITTLE ROCK... Refrigeration & Electrical Supply Co.

**ARIZONA**  
PHOENIX... Authorized Supply Company  
PHOENIX... State Equipment & Supply Co., Inc.

**CALIFORNIA**  
BAKERSFIELD... Refrigeration Supplies Distributor  
EAST LOS ANGELES... Arrow-Risco, Inc.  
EL CENTRO... Allied Refrigeration Suppliers, Inc.  
FRESNO... California Refrigerator Company  
GLENDALE... Arrow-Risco, Inc.  
LONG BEACH... L. B. Marsh Allied Refrigeration Co.  
LOS ANGELES... Arrow-Risco, Inc.  
LOS ANGELES... Brea Supply Company  
LOS ANGELES... Thermal Products, Inc.  
OAKLAND... California Refrigerator Company  
SACRAMENTO... Acme Supply & Equipment Company  
SAN BERNARDINO... L. B. Marsh Allied Refrig. Co.  
SAN DIEGO... Allied Refrigeration Suppliers, Inc.  
SAN FRANCISCO... California Refrigerator Company  
SAN FRANCISCO... Refrig. & Power Specialties Co.  
SAN GABRIEL... Arrow-Risco, Inc.  
STOCKTON... Refrigerating & Power Specialties Co.

**COLORADO**  
DENVER... Thermo Supply Company

**CONNECTICUT**  
HARTFORD... N. W. Day Supply Company  
HARTFORD... Joseph Simons Company  
NEW HAVEN... Resco, Inc.

**DISTRICT OF COLUMBIA**  
WASHINGTON... Refrigeration Supply Co., Inc.

**FLORIDA**  
JACKSONVILLE... Hajoca Corporation  
JACKSONVILLE... Refrigeration Supply Company  
MIAMI... Bowen Refrigeration Supply Co.  
ORLANDO... R & R Supply Company, Inc.  
PENSACOLA... Cooling & Heating Supplies  
TAMPA... Hajoca Corporation  
TAMPA... Leo S. Bosarge Co. of Tampa, Inc.

**GEORGIA**  
ATLANTA... Leo S. Bosarge Company, Inc.  
ATLANTA... Bowen Refrigeration Supplies, Inc.  
COLUMBUS... Hajoca Corporation  
MACON... Graves Refrigeration, Inc.  
SAVANNAH... Savannah Refrigeration Supply Co.

**IDAHO**  
BOISE... Commercial Distributing Company

**ILLINOIS**  
CHICAGO... Service Parts Company  
DECATUR... Potter Supply Company  
EAST ST. LOUIS... Illinois Electric Works, Inc.  
PEORIA... Polar Supply Corporation  
ROCKFORD... Park Distributors, Inc.  
SPRINGFIELD... Spangler, R. H. Company, Inc.

**INDIANA**  
EVANSVILLE... Budlock Refrigeration Supply Co.  
EVANSVILLE... Ohio Valley Hardware Company, Inc.  
INDIANAPOLIS... Duncan Supply Company  
MISHAWAKA... Valley Equipment Company  
RICHMOND... Gennett & Sons, Inc.  
TERRE HAUTE... Budlock Refrigeration Supply Co.

**IOWA**  
CEDAR RAPIDS... Thermal Company, Inc.  
DES MOINES... Thermal Company, Inc.  
DAVENPORT... White Refrigeration Supply, Inc.

**KANSAS**  
TOPEKA... Refrigeration Equipment Company  
WICHITA... Refrigeration Equipment Company

**KENTUCKY**  
LEXINGTON... Brock-McVey Company  
LOUISVILLE... Mill Industrial Supply, Inc.

**LOUISIANA**  
ALEXANDRIA... The American Supply Company, Inc.  
BATON ROUGE... Acme Refrigeration  
LAFAYETTE... Cooling & Heating Wholesalers  
LAKE CHARLES... Temtrol Supply, Inc.  
MONROE... Thermal Supply  
NEW ORLEANS... Nola Sales Company, Inc.  
SHREVEPORT... Standard Brass & Manufacturing Co.

**MAINE**  
PORTLAND... A. E. Borden Company, Inc.  
PORTLAND... Joseph Simons Company

**MARYLAND**  
BALTIMORE... Roche & Hull, Inc.  
SALISBURY... Roche & Hull, Inc.

**MASSACHUSETTS**  
BOSTON... A. E. Borden Company, Inc.  
SPRINGFIELD... C. P. Payson Company, Inc.

**MICHIGAN**  
ALPENA... J. Geo. Fischer & Sons, Inc.  
DETROIT... J. Geo. Fischer & Sons, Inc.  
DETROIT... Young Supply Company  
GRAND RAPIDS... Harris Supply Company  
JACKSON... J. Geo. Fischer & Sons, Inc.  
KALAMAZOO... Harris Supply Company  
LANSING... Harris Supply Company  
PONTIAC... Young Supply Company  
SAGINAW... J. Geo. Fischer & Sons, Inc.

**MINNESOTA**  
MINNEAPOLIS... Thermal Company, Inc.  
ST. PAUL... Thermal Company, Inc.

**MISSISSIPPI**  
JACKSON... Paine Supply Company  
MERIDIAN... Motor Supply Company, Inc.

**MISSOURI**  
KANSAS CITY... Refrigeration Equipment Company  
ST. LOUIS... Mechanical Supply Company  
ST. LOUIS... R. H. Spangler & Company, Inc.  
SPRINGFIELD... John A. Rhodes Company

**NEBRASKA**  
LINCOLN... Wickham Supply Company, Inc.  
OMAHA... White Refrigeration Supply, Inc.

**NEVADA**  
LAS VEGAS... L. B. Marsh Allied Refrigeration  
RENO... Acme Supply & Equipment Company

**NEW JERSEY**  
AVON-By-The-Sea... Wallwork Brothers, Inc.  
NEWARK... Tesco Distributors  
NEWARK... Wallwork Brothers, Inc.  
NEW BRUNSWICK... Tesco Distributors  
OCEAN GROVE... Tesco Distributors  
TRENTON... Jaegers Sales & Service

**NEW MEXICO**  
ALBUQUERQUE... McCombs Supply Company, Inc.

**NEW YORK**  
ALBANY... R. D. Marshall & Company, Inc.  
BROOKLYN... Excel Refrigeration Supplies, Inc.  
BUFFALO... W. A. Case & Son Manufacturing Co.  
BUFFALO... Jordan Supply Company  
ELMIRA... Brady Supply Company  
MOUNT VERNON... Eastern Supply Company  
NEW YORK... Aetna Supply Company  
NEW YORK... Albert Hofeld, Inc.  
NEW YORK... Reese & Long Refrig. Products, Inc.  
NEW YORK... Paramount Electric Supply Company  
ROCHESTER... Ontario Metal Supply, Inc.  
SYRACUSE... Empire Refrigeration Supply Co., Inc.  
SYRACUSE... W. A. Case & Son Manufacturing Co.  
UTICA... Vaeth Electric Company

**NORTH CAROLINA**  
ASHEVILLE... Hajoca Corporation  
CHARLOTTE... Bowen Refrigeration Supplies  
CHARLOTTE... Henry V. Dick & Company  
DURHAM... Hasco, Inc.  
GREENSBORO... Hasco, Inc.  
RALEIGH... Noland Company, Inc.  
RALEIGH... Henry V. Dick Company, Inc.  
WILSON... Noland Company, Inc.  
WINSTON-SALEM... Hasco, Inc.

**OHIO**  
AKRON... Davey Sales Company  
CINCINNATI... Mason Supply Company  
CINCINNATI... Mutual Manufacturing & Supply Co.  
CLEVELAND... Cleveland Hermetic & Supply Co., Inc.  
COLUMBUS... Mason Supply Company

**OKLAHOMA**  
OKLAHOMA CITY... Jones-Newby Supply Company  
OKLAHOMA CITY... M & V Supply Company  
TULSA... Jones-Newby Supply Company

**OREGON**  
PORTLAND... Refrigerating & Power Specialties

**PENNSYLVANIA**  
ALLENTOWN... Larson Supply Company  
ERIE... W. A. Case & Son Manufacturing Company  
ERIE... Erie Refrigeration Supplies  
HARRISBURG... Resco, Inc.  
PHILADELPHIA... Acar Supply Company  
PITTSBURGH... Orr, Inc.  
PITTSBURGH... Proie Brothers, Inc.  
READING... Larson Supply Company  
SCRANTON... Central Service Supply Company  
WILKES-BARRE... Radio Service Company

**RHODE ISLAND**  
PROVIDENCE... A. E. Borden Company, Inc.  
PROVIDENCE... Rhode Island Refrigeration Supply Co.

**SOUTH CAROLINA**  
COLUMBIA... H. V. Dick & Company  
COLUMBIA... Noland Company, Inc.  
GREENVILLE... Henry V. Dick & Company

**SOUTH DAKOTA**  
SIOUX FALLS... Thermal Company, Inc.

**TENNESSEE**  
CHATTANOOGA... Peglar's, Inc.  
MEMPHIS... Budlock Refrigeration Supply Co., Inc.  
MEMPHIS... R. H. Spangler Company, Inc.  
NASHVILLE... J. B. Thomas Company

**TEXAS**  
ABILENE... C & H Distributing Company  
BIRMINGHAM... Coburn Supply Company, Inc.  
CORPUS CHRISTI... Texas Refrig. Supply Company  
DALLAS... Barbeck Refrig. Supply Company, Inc.  
DALLAS... Central Engineering & Supply Company  
EL PASO... M & M Refrigeration & Electrical Supply  
FORT WORTH... Texas Refrigeration Supply Co.  
HARLINGEN... United Supply Company  
HOUSTON... Johnson Supply Company  
HOUSTON... Lingo Company, Inc.  
HOUSTON... Standard Brass & Manufacturing Co.  
LUBBOCK... R & R Refrigeration Corporation  
SAN ANGELO... Central Electric Company  
SAN ANTONIO... United Supply Company  
SAN ANTONIO... Westbrook Company  
TYLER... Amstan Supply Division  
WACO... Texas Refrigeration Supply Company

**UTAH**  
SALT LAKE CITY... Commercial Dist. Company

**VERMONT**  
BURLINGTON... The Blodgett Supply Company, Inc.

**VIRGINIA**  
BRISTOL... Southern Refrigeration Corporation  
NEWPORT NEWS... Noland Company, Inc.  
NORFOLK... Noland Company, Inc.  
NORFOLK... Refrigeration Suppliers, Inc.  
ROANOKE... Southern Refrigeration Corporation

**WASHINGTON**  
SEATTLE... Refrigerating & Power Specialties Co.  
SPOKANE... Wakefield Supply Company  
TACOMA... Refrigerating & Power Specialties Co.

**WEST VIRGINIA**  
CHARLESTON... Mason Supply Company  
HUNTINGTON... Mechanical Refrigeration Supply Co.  
WHEELING... Mason Supply Company

**WISCONSIN**  
MADISON... B. T. U. Equipment & Supply Corp.  
MILWAUKEE... Thermal Company, Inc.

**BRUNNER**  
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185 Authorized Brunner Wholesalers can give quick delivery on BRUNNER parts ... under the exclusive Brunner Warranty Program.

**BRUNNER MANUFACTURING COMPANY**  
UTICA, NEW YORK





- the most complete line of semi-hermetic and open-type condensing units.
- the most versatile, most satisfactory Warranty Program in the industry.
- backed by the biggest distribution system in the air conditioning and refrigeration fields.

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Figures, by themselves, are not necessarily impressive.

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The "Big 185" is today's strength of the coast-to-coast Brunner Wholesaler Team, the largest refrigeration wholesaler organization in the nation . . . and growing larger every day.

It means that almost anywhere in the nation, a Brunner Authorized Wholesaler is right at hand to furnish a wide range of Brunner units, and service parts. Each of these wholesalers is the official Brunner agent in the simple, fast-moving, versatile Brunner Warranty Program . . . the most workable program in the industry today.

It's a terrific sales combination . . . pin-point distribution; warranty service, free from delay; and the most complete line of semi-hermetic and open-type condensing units available from a single manufacturing source.



Brunner-Matic semi-hermetic refrigeration condensing units come in a complete size range . . . 1/4 H.P. through 3 H.P., in water-cooled and air-cooled models. Open-type units from 1/4 H.P. through 100 H.P.

Get all the facts about the BRUNNER WARRANTY PROGRAM. For Free Booklet write to Advertising Department, Brunner Mfg. Co., Utica, N.Y.



**THE BRUNNER COMPANY  
GAINESVILLE, GEORGIA**

In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario

For more information about products advertised on this page use Information Center, page 32.



## New American-Standard Models--

(Concluded from Page 1)

division; year-round units equipped for gas-fired heating; year-round units equipped for oil-fired heating; a counterflow evaporator unit; a blower-equipped evaporator unit; and a new horizontal air-flow evaporator unit that replaces a previous design.

These items, along with a vertical air-flow evaporator unit previously announced, are all in production, available for early delivery to dealers through American-Standard Air Conditioning Div. distributors.

### Specifications Announced

General specifications on the above items were announced as follows:

Model AC-5A—Outdoor air-cooled unit consisting of com-

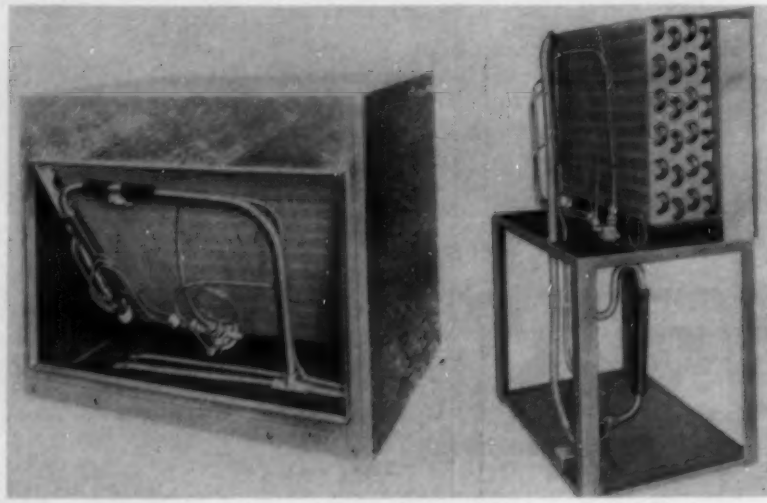
pressor, condenser, and pressure control; 5 hp.; 230-volt, 1-phase, 60-cycle or 208/220-volt, 3-phase, 60-cycle; thermostat packages available for either cooling only or heating and cooling.

Model C-G-AC—Year-round air conditioner for use with American-Standard outdoor, air-cooled condensing unit; 2-hp. cooling with gas-fired heating in capacities of 75,000, 100,000, 125,000, and 150,000 A.G.A. B.t.u.h. input, or 3-hp. cooling with 100,000, 125,000, and 150,000 A.G.A. B.t.u.h. input; 230-60-1, or 208/220-60-3 electric current.

Model C-OB-AC—Year-round air conditioner for use with American-Standard outdoor, air-cooled condensing unit; 2-hp. cooling with oil-fired heating in

capacities of 85,000 or 112,000 B.t.u.h. at bonnet, or 3-hp. cooling with either 85,000 or 112,000 B.t.u.h. at bonnet; 230-60-1 or 208/220-60-3 current.

Among other features of models C-G-AC and C-OB-AC are combination heating-cooling thermostat and built-in manually operated change-over damper



LEFT: American-Standard RC-M horizontal air-flow evaporator. RIGHT: Year-round air conditioner, models C-G-AC and C-OB-AC.

(motor-driven damper optional).

Year-round units include slide-out evaporator unit which may be purchased separately, if desired, for later installation.

Model RC-C—Counterflow evaporator unit; two sizes; designed for use with American-Standard 2-hp. and 3-hp. outdoor air-cooled condensing units; total B.t.u.h. 21,600 and 32,500, respectively; slide-out refrigerant circuit for servicing.

Model RC-B—Blower-equipped horizontal air-flow evaporator for use as above; two sizes—21,600 or 32,500 total B.t.u.h. with 800 c.f.m. or 1,200 c.f.m. blower capacity, respectively.

Model RC-H—Horizontal air-flow evaporator unit designed for use as above; two sizes—21,600 and 32,500 total B.t.u.h.

### Features

Features of the year-round and evaporator units include expansion valve with thermally-aged diaphragm to withstand the high temperatures maintained during the heating system, the company said. Jacket for models RC-C and RC-H can be purchased separately and evaporator coil added later.

Model GHA—Horizontal gas-fired winter air conditioner in four sizes—85,000, 100,000, 125,000, and 150,000 A.G.A. B.t.u.h. input; approved for attic installation; 115-volt, 60-cycle a.c. electrical operation; completely assembled, wired, and installation-tested at the factory.

### Mel's Refrigeration To Distribute UsAirco Line

MINNEAPOLIS — Mel's Refrigeration Sales & Service, Toledo, has been named a distributor by United States Air Conditioning Corp.

Headed by Melvin Lewandowski, the firm will handle UsAirco's line of packaged air conditioners for commercial applications and self-contained central plant equipment for commercial and industrial use.

The firm also handles a complete line of commercial refrigeration equipment.

SO HALSTEAD & MITCHELL ENGINEERS SAID:

**"LET'S INCREASE  
FINNED SURFACE  
HEAT TRANSFER"**

*Announcing "TURBU-FLO" finned surface*

Increase turbulence of air flowing over a surface and heat transfer from that surface is increased. Develop a pattern on the surface which will build turbulence to a maximum within the allowable pressure drop limits . . . there you have the latest contribution from Halstead and Mitchell engineers . . . the new, exclusive "TURBU-FLO" finned surface!

"Turbu-Flo" assures you of extra-safe ratings for your manufactured equipment, because added heat transfer provides an unusual margin of added capacity.

"Turbu-Flo" is manufactured by ultra-modern equipment in our giant Zelienople plant to the exacting quality standards that have made Halstead and Mitchell products distinctive in the air-conditioning and refrigeration industry.

"Turbu-Flo" finned surface is immediately available to meet your every need.

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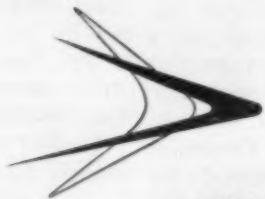
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### help needed in Dayton headquarters

**PRODUCT ENGINEERS** are needed for development, improvement, cost reduction and production follow-up on gas and oil-fired heating equipment, air and water-cooled commercial air conditioning, package and central station equipment.

**PRODUCT DESIGN ENGINEERS** are needed to develop and expand the full line of air conditioning and heating. Cost reduction and production follow-up essential.

**APPLICATION ENGINEERS** will prepare and develop application data for residential cooling and heating. Knowledge of products and their application is necessary.

**APPLICATION ENGINEERS** are needed to prepare and develop application data for central station equipment. Applicants must have knowledge of all sizes of equipment, methods of installing and be capable of training field personnel.

### help needed in field organization

**FIELD ENGINEERS** must have mechanical and application knowledge of air and water-cooled commercial air conditioning, package and central station equipment. Must have ability to properly diagnose mechanical difficulties and improper application. Must be able to train men as well.

Experience in layout and design of large air condi-

tioning installations is essential. Must also have ability to meet and work with consulting engineers and architects. Ability to select and lay out equipment for new and old construction is desirable.

Headquarter cities: Detroit, Michigan, Chicago, Illinois, New York City, Dallas, Texas, Atlanta, Georgia, Dayton, Ohio, Miami, Florida.

### here is what an Airtemp career means to YOU!

You will work on a quality product with a staff of fellow engineers who know more about their field than any other group of men in the world. You will join an organization that *specializes* in air conditioning, that pioneered and led the field with advanced design and application since 1934. You will be associated with men of advanced ideas and open minds. You will enter a company that is continually expand-

ing, a field that is continually expanding, and a future that is assured.

A complete program of induction is provided by Airtemp—up to 18 months training in all phases of air conditioning for young graduate engineers.

Write for complete information today. This may be your opportunity to go forward with Airtemp and the *Forward Look*!

Write Mr. C. J. Katte, Manager of Industrial Relations, Chrysler Corporation, Airtemp Division, P. O. Box 1037, Dayton 1, Ohio. Give resume of experience and background and send small snapshot.



THE FORWARD LOOK

IN AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, INDUSTRY

For more information about products advertised on this page use Information Center, page 32.



## Hits at '1 Hp.=1 Ton'

Variations In Capacities of Air Cooled Units  
Calls for New Rating Terms, Says Henderson

NEW YORK CITY—Westinghouse Electric Corp. has taken sharp issue with 1 horsepower = 1 ton in air conditioning rating.

At a meeting of distributors and dealers in New York City on April 30, Bruce D. Henderson, vice president of the Westinghouse Air Conditioning Div., stated that horsepower ratings, used for some time by manufacturers of room coolers, fail to give an accurate measure of the cooling capacity of air-cooled, central-type air conditioners. As a result, customers are getting an entirely false idea of the cost of central cooling.

### Tests Show Some Units Over Rated 50%

"Comprehensive tests in our laboratories of many brands of residential air conditioners revealed that some units carry published performance figures almost 50% higher than they are capable of producing," Henderson said.

"This is a direct result of the common industry habit of using the terms 'compressor horsepower' and 'ton of cooling capacity' interchangeably.

"In air-cooled units nothing could be further from the truth. A homeowner attempting to select one of five major air-cooled home air conditioners, each claimed far and wide to be a 3-hp. model, would find the actual cooling capacities ranged from 25,000 B.t.u./hr. to 37,000 B.t.u./hr.—a variation of a full ton in cooling capacity.

### Water-Cooled Ratings Were More Accurate

"When the industry as a whole was concentrating on water-cooled models, 1 hp. was generally equivalent to 1 ton of cooling capacity. Now, with the overwhelming rush to air-cooled models, the two terms are no longer interchangeable.

"When a manufacturer converts a properly rated water-cooled air conditioner to one using an air-cooled condenser, there is much more involved than the mere replacement of condenser.

"For example, a water-cooled unit can operate at 120 p.s.i.g. condensing pressure and produce 36,000 B.t.u./hr. But when this is converted to an air-cooled unit and the condensing pressure is increased to 200 p.s.i.g., the air conditioner will no longer produce 36,000 B.t.u./hr., but may drop to as low as 25,000 B.t.u./hr. To compensate for this drop in capacity, the compressor size must be increased.

### Boosted Compressor Size For Air Cooled

"Recognizing the trend toward air-cooled condensers several years ago," Henderson said, "Westinghouse started to redesign their compressor and raise its horsepower rating in order to maintain the same cooling capacity as their water-cooled models. For example, our earlier 3-hp. compressor has

been increased to 4 hp. giving us now over 3-tons of cooling capacity in our 3-ton air-cooled models.

"One of the greatest deterrents to accurate and honest rating of air conditioners is the scarcity of proper testing facilities within the industry. In order to properly classify a unit, it is necessary to have test chambers in which controlled temperature, humidity, and air flow conditions can be maintained on both sides of the unit simultaneously. Only in this way can actual operating characteristics be determined."

Henderson emphatically urged that representatives of the air

conditioning industry join forces to establish and enforce the proper rating of their products. He said a certification system should be worked out similar to the American Gas Association rating in that industry.

### Customer Buys Cooling

"Horsepower," Henderson concluded, "is a term used to measure the amount of power required to drive the compressor of an air conditioner. Ton of cooling capacity, on the other hand, is an accurate measure of the amount of heat that can be removed in a specific period.

"When we talk about cooling capacity—then we hit what the customer is purchasing."

## Mobile, Ala. Awards Contracts for Cooling In 2 Public Buildings

MOBILE, Ala.—Contracts to air condition the Council Chamber of City Hall and the Spring Hill Avenue Recreation building were awarded low bidders recently by the City Commission.

Gerald L. Leff obtained the Council Chamber contract on a bid of \$3,450. Five other bids were received on this project, it was noted.

Air Conditioning Engineers were given the recreation building contract on a bid of \$3,472. Five others also bid on this project.

Plans were discussed for air conditioning Bernheim Hall at Mobile Public Library, but bids on this project had not been received at the time.

## National-U.S. Radiator Opens Canadian Office

JOHNSTOWN, Pa.—Consistently rising sales of heating and air conditioning equipment throughout Canada has influenced the creation of a Canadian branch sales office by the Heating and Air Conditioning Div., National-U. S. Radiator Corp., the company announced recently.

The new office has been initially located at 1720 Military Rd., Buffalo 17, N. Y.

Roland A. Hazell has been named manager of the office.

According to F. S. Hudson, Jr., divisional general manager of sales, plans are developing to build a Canadian sales staff. It is expected that eventually an office will be established in Toronto, the company official explained.

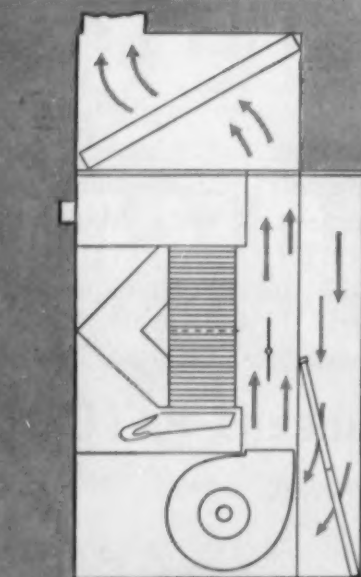
Rush coupon for money-making story on the big news in year 'round conditioners!

# NEW Win-Summatic

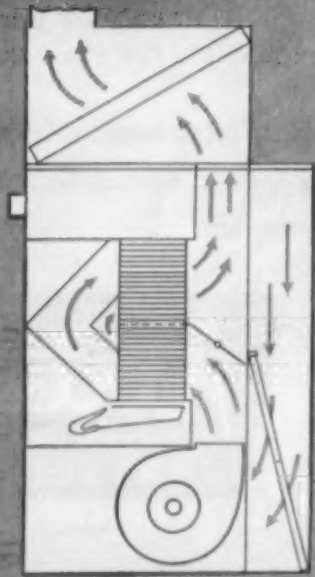
The only combination  
with Season Selector  
and Pride O' Yard waterless

No more seasonal change-over headaches! Exclusive Season Selector Control automatically governs air volume for top-efficiency heating or cooling, without seasonal blower or motor adjustments—eliminates service calls for seasonal changeover. Simply set changeover damper for "heating" or "cooling" as desired, either manually or by remote control! Easy, convenient, troublefree! This exclusive Janitrol advancement allows new simplicity and compactness of conditioner design, with lowest possible blower speed for smoothest, quietest performance!

Exclusive "Pride o' Yard" Compressor-Condenser is low, sleek, beautiful. Completely outmodes all other units of its type. Powerful—operates with outside temperatures to 125° F. Completely waterless, uses only air and electricity. 2, 3 and 5 HP sizes.



FOR COOLING—Season Selector Control allows straight air flow from blower to cooling coil, bypassing the heat exchanger.



FOR HEATING—Season Selector Control directs air through twin bypass in heat exchanger for maximum heat extraction.



ALL-NEW PRIDE O' YARD COMPRESSOR-CONDENSER exhausts air out top instead of sides. Protects growing things nearby from hot blasts of exhaust air. Only Janitrol has it!



# Simplifying Air Conditioning Duct Design, Sizing

Draw Single-Line Layout, Locate Outlets, Assign Velocities, Size by Calculator or Guide, Figure Friction, Pressure Drop, Fan Motor Size

COLUMBIA, Mo.—The design of determining the quantity of air to be circulated, said Herman. It should be large enough to pick up the sensible cooling load at a temperature differential of not more than 20°.

This was brought out in the discussion of "Duct Design" presented at the University of Missouri Air Conditioning Conference by Donald P. Herman of Smith-Hanlon-Zurheide-Levy, Inc., consulting engineer of St. Louis.

## Air Quantity Should Be Large Enough

One of the first considerations involved in duct design is that

The air quantity should also be sufficient so that the air in the occupied space is changed every 6 to 8 minutes. This is necessary to provide adequate air movement. The maximum air quantity as required for the cooling load or for circulation will then determine the amount of air to be circulated.

Air velocities used for sizing ductwork in commercial installation generally vary from 800 f.p.m. to 1,500 f.p.m. depending

upon the particular requirements of the installation. In residential installations air noise is the prime consideration and velocities in the order of 600 to 800 f.p.m. are satisfactory.

Herman described two simplified methods of duct design and duct sizing. The installation used in his example was a 60 by 30-ft. store, handled by a 5-ton cooling system, with a 2,000 c.f.m. air delivery.

The first step is to draw a single-line duct layout, then locate the supply outlets along this line, making certain to provide ample air delivery nearest the biggest load point.

Then in the "velocity reduc-

tion method" of duct design, the first move is to assign the velocities to be used. Starting with a 1,100 f.p.m. velocity, the velocity is dropped to 1,000, 900, and 800 f.p.m. along the supply duct after the outlets.

## Size Supply Ductwork

The supply ductwork is then sized by making use of a duct slide rule calculator or from tables printed in the ASH&AE Guide. The proper size reduction after each outlet is then assigned to each section of the ductwork. To size the return air duct a velocity of 1,000 f.p.m. was selected and a duct size of 24 by 14 in. was assigned.

Next step is to determine the friction drop for each section of the ductwork. This is done by multiplying the friction drop per foot by the number of lineal feet in each section. The individual friction drops in the ductwork including the return air section are then added together to determine the total pressure drop of the ductwork.

## Add Various Pressure Drops to Duct Loss

Then, to determine the pressure drop through the system, the pressure drop through the supply and return grilles, the filter section (using the average value of the drop when clean and when dirty) are added to the duct loss already determined. This total figure represents the static pressure which the fan will have to provide.

The proper fan motor size is then determined from the c.f.m. and static pressure tables.

## Constant Friction Method Discussed

The "constant friction" method of sizing ductwork was also discussed by the speaker. When using this method, the allowable static pressure drop per hundred feet of ductwork is calculated. This pressure drop is then used in sizing all of the sections of the duct system.

The total pressure drop through the duct system is then determined by multiplying the friction drop per foot by the number of lineal feet.

## Static Regain Method Covered Briefly

The static regain method of sizing ductwork was briefly discussed. This method is more complicated and generally not used when sizing a small duct system. However, it is useful in large central station type installations and is the most scientific approach to the problem.

Herman stated that the idea of the static regain method is to convert velocity pressure to static pressure to offset the pressure drop due to friction. This is accomplished by reducing proper air velocities.

The speaker also pointed out some of the "jokers" that may throw off calculations—such as irregularities in joints and lack of proper allowances for elbows and turning vanes.

He also urged that proper study be made of the use of dampers, scoops, or "taps" near diffuser outlets, to assure proper air velocities at the supply point.

The speaker also said that the use of internal duct insulation is gaining in popularity. The type of insulation most often used is a glass fiber product with one side coated to prevent the fibers from pulling loose and entering the air stream. Because of the sound absorbing properties of internal insulation, slightly higher duct velocities can be used. The insulation must be carefully applied so that there are no uncoated edges exposed to the air stream.

Air Conditioning Manager

JANITROL HEATING & AIR CONDITIONING DIVISION  
COLUMBUS 16, OHIO

Please rush me complete information on new Janitrol WIN-SUM-MATIC year 'round conditioner and Janitrol dealer opportunities in my area.

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heating-cooling unit  
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Famous Janitrol Heating Heart with exclusive Multi-Thermex heat exchanger provides amazing freedom from burnouts, cracking, corrosion—delivers the cleanest, most economical gas heating modern science has yet produced. 80,000, 100,000 and 140,000 Btu/hr. capacities.

WIN-SUM-MATIC models are available with "ADD-ON" cooling option, to help you make more sales. Install as complete heating-cooling "package", or reduce initial cost by leaving evaporator cabinet empty for addition of cooling at owner's option.



CASH IN ON OPERATION HOME IMPROVEMENT WITH COMPLETE JANITROL LINE OF SUMMER, WINTER AND YEAR 'ROUND CONDITIONERS!

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COMPACT—IDEAL FOR NEW OR OLD HOMES!  
Win-Sum-Matic High Boy fits in little as 4 1/2 sq. ft. of floor space. As Low Boy, with rear-mounted filters, it's only 60" high. Single duct system for heating and cooling. Uses existing warm air ducts for modernization.



## Auto Dealers Get Behind Airtemp Contest



"REAL COOL GAL" contest gets major boost as Chrysler Corp. auto dealers display window air conditioners and contest posters in their showrooms in Chicago area. Under the plan the public will be able to buy an air conditioner for either car, home, or office through local Chrysler, Dodge, Plymouth, or DeSoto automotive dealers. Here Miss Pat Gilbert, a candidate for the "Miss Cool Gal" title, and regional managers of the Chrysler Corp. automotive divisions look over the first announcement to the public. Airtemp officials indicated that this is not a new idea, but that it is the first attempt to sell room air conditioners through auto dealers on such a large scale. The distributor is said to be working on arrangements for installation and service.

## Rosy Future Seen for Room Unit Market by Cassatt; Price Cutting Described as Biggest, Sharpest Thorn

MEMPHIS — "The biggest thorn in the rosy future of the room air conditioner market is price cutting," the Memphis Retail Appliance Dealers Association was told recently by R. E. Cassatt, manager of sales, commercial Div., York Corp.

Describing the room air conditioner market for this year, Cassatt said: "1,800,000 units will be sold in 1956. And, based on the wired home index, room air conditioners are only 5.6% saturated.

"Your market is growing as fast as your sales rate. In 1956 alone, enough new buildings will be erected to make a city the size of Chicago. And in that city of homes, shops, stores, restaurants, garages, hotels, and motels, practically everyone will

be a prospect for room air conditioners."

Room air conditioners not only sell to more types of prospects, Cassatt declared, but you have a better chance of selling, two, three, or even four room air conditioners to a single prospect—a better chance than you would with any other major appliance.

The great majority of home appliances depend almost exclusively on home sales, he noted. Refrigerators sell only 2% to business; television only 15%, and that includes bars and taverns. However, he said, only 70% of the demand for room air conditioners is in homes; the other 30% is in business and industry.

"Your future in room air con-

ditioners is really rosy," Cassatt told the appliance dealers, "but right under the rose sits the biggest, sharpest thorn—price-cutting."

Asked Cassatt: "Does the price pitch work? Will it bring in customers? Can you make a profit by price cutting? The answer to all these questions is 'Yes—but not much, or for long.'"

The big challenge in this business is how to get volume without cutting prices, he asserted, adding:

"Must price be your principal sales point? A recent survey by *Time* magazine turned up nine reasons why people bought room air conditioners. Price was eighth on the list. Only one percent of the people considered price most important when they bought their unit."

Cassatt then set forth the reasons, apart from price, that move people to buy room air conditioners: comfort, health, security, prestige, and enjoyment, for themselves and for their families.

"But in order to use these motives you must be a salesman, not an order-taker," he stressed. "In short, the big word on the other side of the price-cutting coin is salesmanship."

"You must: sell yourself; sell your product; sell your special services; build customer confidence. Do these things and price is no longer a handicap."

# Save!

## WITH WOLVERINE PREASSEMBLED ALUMINUM REFRIGERATION PARTS

### THE COPPER-TO-ALUMINUM CONNECTORS

Copper-to-aluminum connectors are available in  $\frac{3}{8}$ " and  $\frac{1}{2}$ " diameters. Connectors such as these simplify the use of both aluminum and copper tubing in the same refrigeration cycle.

### THE ACCUMULATOR

This aluminum accumulator is a product of Wolverine's Aluminum Spun End Process\* and features one-piece construction. Because Wolverine uses no metal lubricant during spinning such parts are clean, dry, bright—ready for use without further metal cleaning. They are welded easily.

### THE COIL

This aluminum bunch-type coil is available in sizes and lengths to meet customer specifications. It is clean, dry, easy to bend, consistent in temper—Tube-manship-made for years of trouble-free service.

Here is another example of how Wolverine's prefabrication services can help you do a better job. Definite savings in time, labor and money are among the benefits you realize when you order Wolverine preassembled refrigeration units. They eliminate welding and assembly operations in your own plant. The evaporator assembly can be purchased as a preassembled unit or as individual components. Either way, it's another one-source Wolverine service to the refrigeration industry.

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\*PROCESS PATENT APPLIED FOR

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GIBSON window air conditioner mounted "all-the-way-in" the room with aid of new kit.

### Gibson Kit Allows All-Way-In Mounting For Room Conditioners

GREENVILLE, Mich. — Gibson Refrigerator Co. has announced a new kit for "all-the-way-in" room mounting of Gibson window air conditioners.

According to J. F. Klintworth, manager of Gibson room air conditioner sales, the kit is designed to permit installation under codes prohibiting projection of air conditioners beyond the window glass line. Windows may also be raised or lowered to facilitate window washing.

The mounting leaves space under the air conditioner for installation of storage cabinets, bookcases, or other furniture.

The Gibson kit will fit windows up to 60 in. wide. Side scoops provide outside air to the louvers in the side of the air conditioner. Legs are adjustable.



## Rise In Foreign Use Of Air Conditioning Seen by Airtemp Div.

DAYTON—Use of air conditioning equipment in most foreign countries is on the rise, according to Airtemp Div., Chrysler Corp.

American-made window or room air conditioners and packaged units especially are becoming popular abroad, it was pointed out.

One example comes from C. Kersten & Co., Airtemp distributor in Paramaribo, Surinam (Dutch Guiana), S.A.

Several sections of the modern government hospital there were recently equipped with Airtemp room air conditioners, sold and installed by Kersten. In addition, a 3-hp. packaged air conditioner was installed to serve the hospital's main operating room.

### Air Conditioned

## Homefurnishings Mart In Dallas Will Serve Southwestern Area

DALLAS—Plans have been announced for the construction here of the Southwest Homefurnishings Mart, which reportedly will be "the first completely air conditioned homefurnishings display building in America."

Trammell Crow, developer and financier of industrial properties, will build and operate the mart. Ground will be broken within 30 days, Crow said, with completion scheduled for early 1957, at a cost of approximately \$6,500,000.

The two-story structure will be located at 2000 Stemmons Expressway, just north of Dal-Hi Stadium. The 25-acre site will include free parking for 3,000 cars.

Air conditioning will be provided by a 1,200-ton General Electric indirect system from a central plant, according to the announcement. Each showroom will have its own circulation handling unit.

The mart's 217,000-sq. ft. floor plan is the largest among commercial buildings in Dallas, and its total of 434,000 sq. ft. will make it the city's third largest building, it was stated. Design and construction are planned to permit additions to an ultimate total of 1,750,000 sq. ft.

In addition to year-round display, two market events will be staged each year.

## Spanish Firm Buys 20 Refrigerated Truck-Trailers

NEW YORK CITY—A Spanish firm has ordered 20 Freuhauf Trailer Co. refrigerated truck-trailers — "the first of their kind in Europe," Alec S. Aranyos, Freuhauf vice president and director of foreign operations, has announced. The trailers cost \$250,000.

The Spanish firm, General Commissary of Supplies and Transport in Madrid, plans to use the 35-ft. long trailers to carry frozen foods to various European cities.

## Hussmann To Build New Factory

ST. LOUIS—Plans for construction of a new manufacturing plant in the Camden-Philadelphia area, have been announced by Hussmann Refrigerator Co.

The purchase by Hussmann of a 65-acre plant site with one-half mile of frontage on the New Jersey Turnpike and excellent railroad and other transportation means constitute the first

step by Hussmann to provide substantially larger capacity.

The project calls for eventual development of a large, completely integrated plant and to produce all major items in the Hussmann line of food store equipment. Actual construction is planned to be by units which, when completed, will provide maximum designed capacity.

The individual units as built,

while fitting into the ultimate plan, will only permit production of certain products—not the completely line until all units have been finished.

Tentatively, construction of the first unit, comprising slightly over 100,000 sq. ft., is expected to start in the near future.

To date, Hussmann production facilities in the United States have been concentrated in two plants in St. Louis. One entire plant has been con-

structed in units since 1950—the latest unit being completed April 1, 1956.

General offices for both Hussmann Refrigerator Co. and its subsidiary, Hussmann Refrigeration, Inc., are in St. Louis.

### Bryant Distributor Moves

ATLANTA—Bryant Atlanta Corp., Georgia distributor of Bryant heating and air conditioning equipment, has moved to 486 Fourteenth St., N.W.

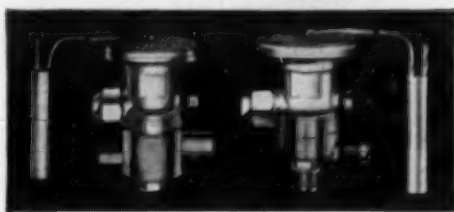


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write for bulletin 171-53 today



# Small Businesses

*They're Growing In Numbers, Suffering Fewer Failures, Says SBA Official In Outlining Governmental Assistance Policy*

CHICAGO—Are small firms "falling by the wayside?"

Definitely not, says William H. Kelley, Chicago regional director of the Small Business Administration.

Addressing heating and air conditioning dealers attending a management school held recently on the Northwestern university Chicago campus, Kelley cited statistics to support his statement. He also outlined the services made available to small firms through the SBA.

Regarding the future of small business, he said: "Most of us are in agreement that these are very prosperous times for busi-

ness and that as our economy continues to expand there will be increasing opportunities for all.

"But there are some dissident voices that can be heard proclaiming that things are not going well, that there are many business failures, that there are fewer small businessmen now than in the past. These claims, of course, are not true. . . .

"The truth is there are one-third more small businesses now than in 1939; there were more new businesses incorporated in 1955 than in any previous year in the nation's history.

"The only records kept on

business failures are those developed by Dun & Bradstreet. The normal year, in looking at business failures, is a year in which there is no war or no reconversion from war.

"In 1955, a normal year, there were approximately 10,969 business failures. How does that figure compare with the number of failures during other normal years?

## Failures Compared

"Let us compare 1955 failures . . . with those in 1939, a year marked neither by war nor by reconversion. In 1939 there were 14,768 failures, approxi-

mately 3,800 more than in 1955. "But this does not tell the whole story.

"By 1955, there were one-third more businesses than in 1939. On this basis, it would be logical to expect one-third more failures in 1955 than in 1939. Instead, failures were far smaller in number.

"Because of changes in the business population, however, a more significant statistic is the failure rate in terms of number of failures per 10,000 business concerns.

"According to Dun & Bradstreet, over the past 56 years the failure rate has been 71 per 10,000 business concerns. In 1955, the failure rate was less than 42 for every 10,000 concerns, the lowest we have ever experienced in a year of normal economic activity!

"Now apply the Dun & Bradstreet finding of about 10,000

failures to the 2,700,000 firms covered in the Dun & Bradstreet survey, and what do you find?

"Only 10 small businesses failed in 1955 out of every 2,700. Thus, when somebody says that the rate of failure is up 10% since October, they are saying that one more business failed out of every 2,700.

"So how can anyone honestly say that small firms are falling by the wayside? . . .

## Comparing Small and Large Business Profits

"And what is the truth about the profits of small businesses? To get the real story of what has happened to small business earnings in recent years, let's compare net sales before taxes and earnings after taxes, of firms with assets of under \$1,000,000 and those with assets of over \$1,000,000—a sound dividing line between the large and the small.

"Between 1947 and 1953, sales of companies with under \$1,000,000 in assets went up only 7%, from \$33,883,000,000 to \$36,341,000,000. On the other hand, sales of companies with assets over \$1,000,000 went up almost 60%, from \$144,290,000,000 to \$229,549,000,000.

"The sales figures between 1953 and 1955 have stabilized both for large and small firms. For the four quarters ending September 30, 1955, sales of the smaller companies were \$35,527,000,000, and of the companies with assets over \$1,000,000, \$233,728,000,000.

"But here is the most revealing comparison!

"Between 1947 and 1953 earnings before taxes of small firms dropped by 26.7% and earnings after taxes dropped by 40.1%. In the case of large firms, however, earnings before taxes increased by 57.9% and earnings after taxes by 17%.

"Since 1953, earnings after taxes of small firms showed a drop of 4.4% but a major recovery has occurred since the low point of 1954, and according to the present trend, earnings after taxes of small firms will soon reach a higher level than they were in 1953."

## Program To Assist Small Firms

Kelley then outlined the programs the Small Business Administration has developed to assist small firms.

He said the SBA has four principal responsibilities:

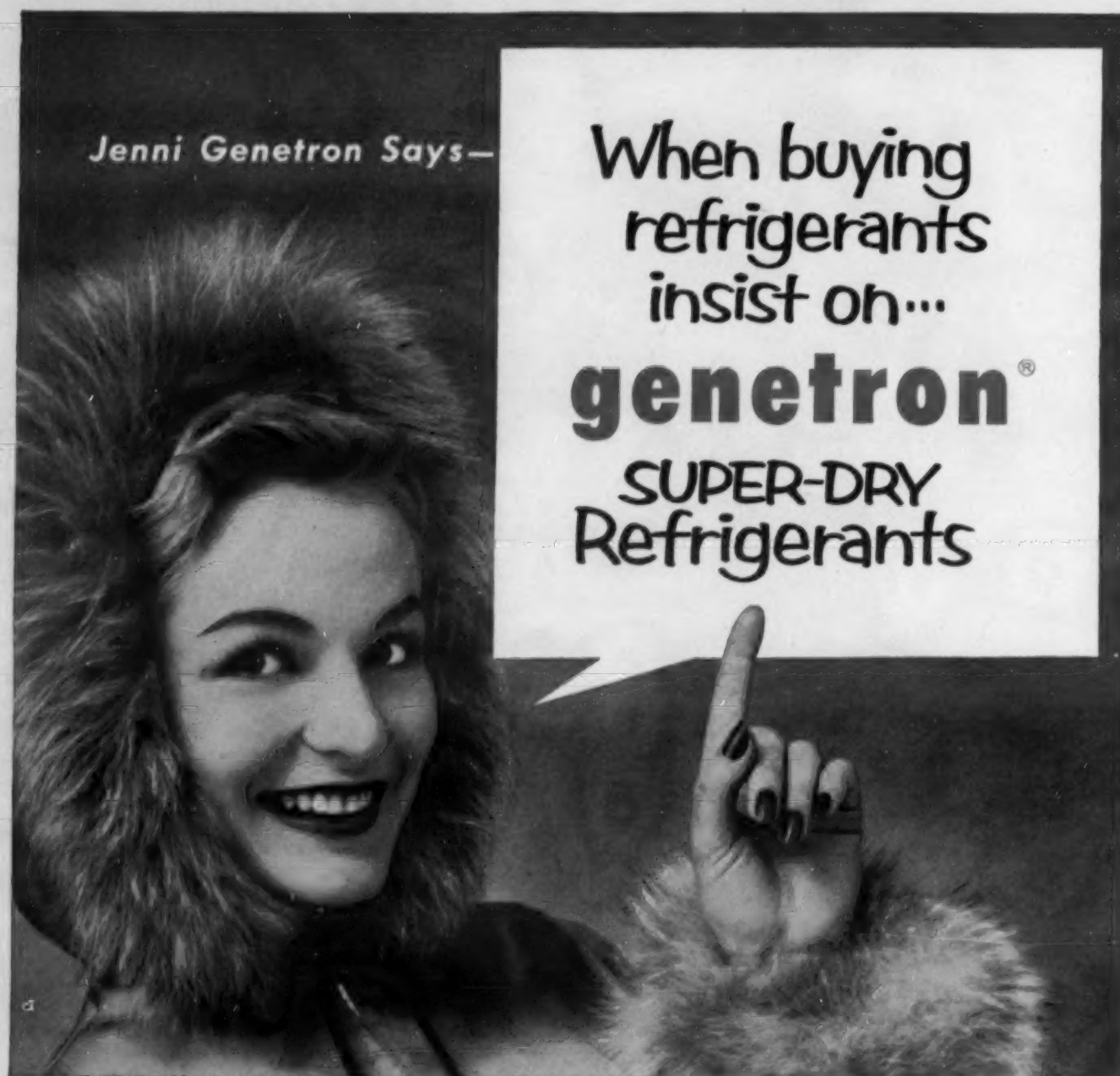
To help small firms gain access to adequate credit on reasonable terms; to help them obtain a fair share of the Government's orders and contracts; to assist them with their management and technical production problems; and to make disaster loans at 3% interest to owners of homes and businesses damaged by floods, tornadoes, hurricanes, and other natural catastrophes.

Regarding assistance in obtaining Government orders and contracts, Kelley said:

"Our most important activity in this area is what we call our 'joint determination' program with the Department of Defense.

"Under this program, our agency has assigned representatives to the principal military purchasing centers to review (Concluded on next page)

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**GENERAL CHEMICAL DIVISION**

ALLIED CHEMICAL & DYE CORPORATION

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## Small Business Report--

(Concluded from preceding page) their proposed purchases and to determine, in cooperation with the military contracting officers, which orders should be set aside entirely or in part for award to small business.

"Since Aug. 1, 1953, when the Small Business Administration began, more than \$840,000,000 in military purchases have been set aside for exclusive award to small business. As a result, small firms already have been awarded about 9,266 contracts amounting to approximately \$472 million.

### Other Government Agencies Cooperate

"We also have cooperative agreement with other major purchasing agencies of the Government, including the General Services Administration, the Atomic Energy Commission, the Veterans Administration, and the Department of Agriculture designed to increase the small business share of their purchases."

He continued:

### Technical Information Made Available

"Our program of aid to small firms in their management and technical problems is largely educational and designed to help businessmen fill in gaps in their knowledge and experience.

"Another and newer agency service which is proving its worth and which we believe holds even greater promise for the future is our products assistance program.

"We help small firms draw upon the wealth of non-confidential research information which is available from Government agencies, research institutions, trade associations, and private industry.

"Most of this information has always been available to the small firm—the problem is that it does not know where to go or whom to ask for it. We serve as a medium through which this research information can be directed to small firms in need of it.

"Through a products circular list, we also call the attention of small firms to new ideas and new and improved products that individuals and businessmen have developed and would like to have put on the market. This circular is particularly useful to small concerns which have open productive capacity, or which desire to expand or diversify. . . .

### Aid In Financing

"One of the major problems of small business concerns is inability to obtain medium and long-term financing for working capital, to purchase equipment and materials, or to expand and modernize their operations.

"The Small Business Administration helps here in several ways. We counsel with small firms on their financial problems; assist them in obtaining credit from private sources; and, if private credit is not available on reasonable terms, we extend financing to the small firms.

"Our agency can make direct

loans to small firms, or loans in participation with banks and other private lending institutions. However, we cannot make a direct loan if a participation loan is available.

### Direct Loans Limited To \$250,000

"The agency's direct loans are limited by law to \$250,000 to any one borrower, and this same limitation applies to the agency's share of a participation loan. . . . About two-thirds of the business loans we have

approved have been of the bank participation type. . . .

"In order to provide financial assistance to additional worthy small business concerns, the Small Business Administration has placed in effect the Limited Loan Participation Plan. This new program is being conducted in cooperation with the private banks of the nation.

"These loans are designed especially to assist small retailers, wholesale distributors, and service establishments, although other types of businesses also are eligible for such loans.

"As a rule, small concerns in these fields have very little in

the way of tangible collateral which they can pledge for a loan. However, they often have a good earnings record, competent management, and a creditable record with local banks for meeting their obligations.

### Participation Loans

"Under this plan, the Small Business Administration will participate with a bank in a loan . . . up to a maximum of \$15,000 or 75% of the total amount of the loan, whichever is the lesser.

"Generally, the participating bank's share in the loan must represent additional exposure on

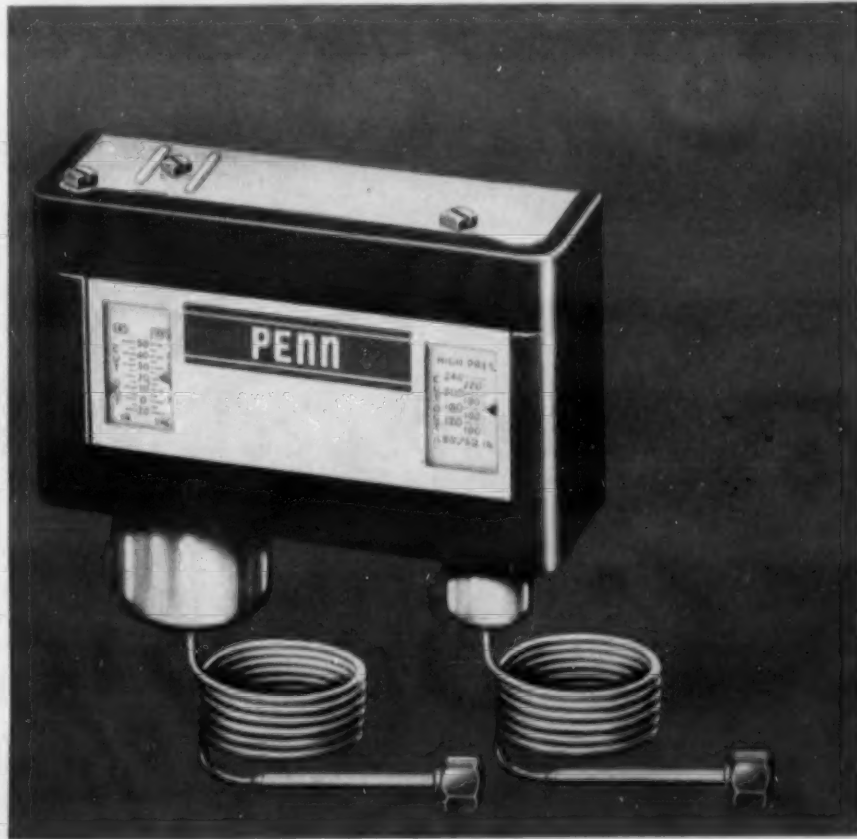
the part of the bank equal to not less than 25% of the total amount of the loan.

"However, short-term loans which have been outstanding no more than six months or loans made for a longer term on which repayments have been made promptly as originally scheduled may be substituted for the new money requirement or included in computing the bank's participation in the loan.

"In either case, the bank's share in the loan must be equal to at least the outstanding loan to be refunded with a part of the new loan or 25% of the full loan, whichever is the larger."



Exterior of Series 1272 single function control available for either low or high pressure.



Series 1273 dual pressure control. Lockout and manual reset available for either low or high pressure cut-out.

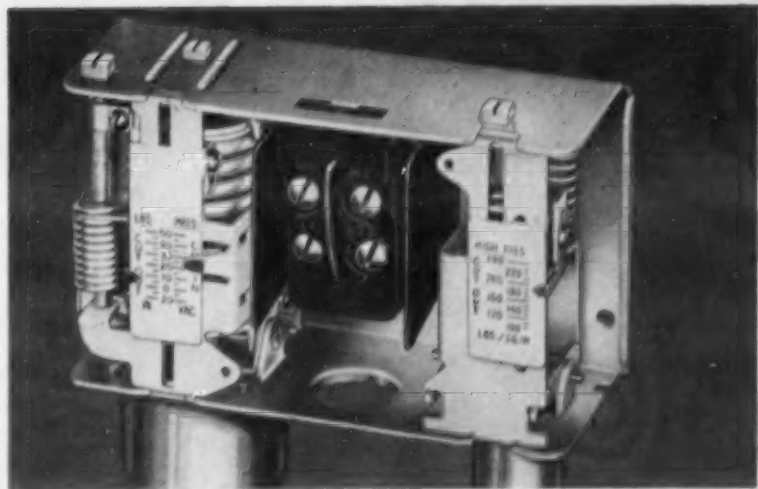
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**Extra heavy duty Series 1272 and 1273 pressure controls have the highest rating in the industry!**

Specifically designed for commercial refrigeration and air conditioning jobs, the Series 1272 and 1273 are rated at 3 H.P. for single phase compressors and at 5 H.P. for polyphase compressors.

Thus, cost of contactor is eliminated if motor has built-in overload protection. If motor requires external overload protection, the motor starter can be replaced by the more economical "manual starter." So . . . in either case, these Penn controls *save you money!*


In addition, the Series 1272 single function and Series 1273 dual function controls meet the most modern maximum test requirements. And, there are features such as . . . self-cleaning, snap-acting contacts . . . direct-reading calibrated scale for simple cut-in and cut-out setting . . . and many more. So, don't settle for less. Get the full story from your wholesaler or compressor manufacturer.



Interior of Series 1273 illustrating sturdy contact block with easy-to-reach wiring terminals.

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AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING,  
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*Designed and engineered for heavy duty performance*

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Foster has had long and successful experience in building welded all-aluminum refrigerators and freezers for installations all over the world. They have met every in-the-field test for strength, durability and long life.

Thousands upon thousands of satisfied users know that Foster meets the most exacting specifications, the most critical demands of hard, day to day use, year after year.

And most important—they're priced low and right!

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NATIONWIDE FACTORY TRAINED REGIONAL SALES MANAGERS FOR SALES AND SERVICE

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## McCray Appoints Truitt In South Atlantic Area

KENDALLVILLE, Ind.—The appointment of Wm. I. Truitt, Jr., as national accounts representative, has just been announced by Hugh E. Cooper, general manager of sales for the McCray Refrigerator Co., Inc.



W. Truitt, Jr.

Truitt's territory will include all of the southern Atlantic states, with headquarters in Norfolk, Va.

For more than 10 years Truitt has been the McCray distributor in Norfolk. His company, Truitt Refrigeration Corp., will continue to distribute McCray products in the Norfolk area, it was added.



THIS MODEL serves herself cartons of milk and cream from the new Jennings "Automatic Milk Vendor" which vends two different carton sizes in any combination.

## Dairies To View Milk Carton Vendor In 33-State Tour

CHICAGO—A new automatic milk vending machine will "star" in a traveling sales show in 600 cities following its "debut" in New York City.

The machine, the "Automatic Milk Vendor," manufactured by Jennings & Co., Chicago, will travel by truck through 33 states to inaugurate an intensive promotion throughout the country.

The decision to kick off the nationwide sales effort was made by Jennings after completion of a highly successful marketing test in the New York metropolitan area, according to Louis F. Urban, Jennings' president.

Each of two trucks, which are sponsored by a Jennings' distributor, Cherry-Burrell Corp., will carry a unit. One was scheduled to tour Iowa during March. The other will begin a trek through eastern Pennsylvania, New England, and New York.

## Dairies Often Use Vendors To Cut Delivery Costs

"Principal stops will be dairies which often operate the machines in apartment houses to cut delivery costs," it was stated.

In addition to Cherry-Burrell, Urban announced the appointment of eight other distributors.

They are Meyer-Blanke Co., St. Louis; Milk Vendors, Inc., New York City; Kennedy-Parsons Co., Omaha, Neb.; The Hurley Co., Denver; Monroe Food Machinery, Inc., Portland, Ore.; Miller-Lenfesty Supply Co., Tampa, Fla.; Miller Machinery & Supply Co., Jacksonville, Fla.; and John Pico Dairy Supplies Co., New Orleans.

## Outlets In 48 States, Eastern Canada

This will give Jennings outlets in all 48 states and the eastern part of Canada, Urban said.

The Vendor was market tested in 35 locations in the New York area after its introduction in June.

The machines were placed in apartment house, supermarket, street corner, filling station, industrial plant, and office locations by vending machine organizations and dairies. All operators reported steadily increasing milk sales where the Vendor was placed, Urban said.

The Jennings machine markets any two sizes of cartons in any combination.

## Refrigerated Beer Case Near Checkouts Boosts Market's Daily Sales

ELMIRA, N. Y.—What is the best location in a supermarket for a beer case?

Adjacent to the checkout stands, in the opinion of Alvin J. Nasser, operator of the T & J super here.

To support his view, Nasser points out that since he moved his refrigerated beer case to a spot near the checkouts, sales have increased substantially. Turnover now averages 50 cases of cold beer daily, with holiday week-end volume reaching 100 cases a day.

Explaining why he re-located the 12-ft. Tyler case, Nasser said:

## Beer Bought Last

"Most shoppers put off their beer buying until last because they don't want to 'short-change' themselves when it comes to buying staples. They also like to 'buy beer last' to keep it from getting warm, and some customers don't like to be seen by others carting beer around the store."

In addition, the present location of the case is convenient for the "quick beer customer," according to Nasser. Such customers can pick up their beer and be on their way without having to waste any time, he says.

Eighteen brands are stocked in the case, with full-case lots being put on the lower level and six-packs and single bottles on the upper shelves.

Although the case has to be restocked several times a day, Nasser doesn't plan to enlarge the beer section. He says shoppers prefer a small section because it facilitates selection.

## Warm Beer Outsold 10 to 1

Nasser has found that cold beer outsells warm beer by 10 to one. He set up several warm-beer displays around the store, including one next to the beer case, but discovered that most customers selected cold beer.

To help promote sales of beer, T & J offers beer "specials" in its newspaper advertising and displays a large sign on the front of the store advising "Some Delicious Cold Beer Will Give You Added Pleasure." The sign is intended to catch the eye of sportsmen and picnickers passing the super's edge-of-town location.

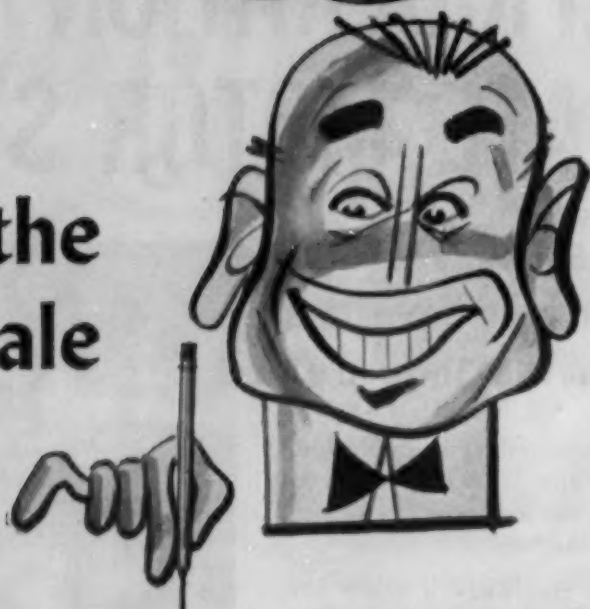
If your prospect acts like this



suggest time payments



to close the sale



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popular COMMERCIAL CREDIT PLAN. To discover how COMMERCIAL CREDIT's tailor-made Refrigeration Financing Plan can help you build prestige and close sales, call our office in your city or write COMMERCIAL CREDIT CORPORATION, 14 Light Street, Baltimore 2, Maryland.

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## Air Force Academy Study

# Determine Sun's Effect on Home, School, Office, Factory Heating, Conditioning

COLORADO SPRINGS, Colo.—A research program—first of its kind in military history—is being conducted on the site of the Air Force Academy here. Its purpose: to help engineers, scientists, and military officials find an "indoor climate" in which cadets will learn most effectively.

Details of the experiment were disclosed by Air Force Secretary Donald A. Quarles following a tour of the Academy site and a review of preliminary findings by engineers of the Air Force Academy Construction Agency and Minneapolis-Honeywell Regulator Co. who are co-operating in the studies.

Two 13 by 18-ft. dormitory rooms have been built as exact duplicates of the quarters which will house the Academy's 2,600 cadets. The experimental rooms are the first structures to be erected on the 17,500-acre site 10 miles north of Colorado Springs.

## Research Instruments Record Temperature, Sun Effects, Air Movement, Humidity, etc.

The rooms are equipped with sensitive Minneapolis-Honeywell and Air Weather Service research instruments which read and record air temperatures at six points, chart the effects of the sun, air movement, humidity, and other conditions that affect human comfort and efficiency, it was noted.

The rooms are also furnished with automatic temperature controls so indoor conditions can be regulated and the effects of the changes recorded.

This data will be supplemented by reports from Air Force second lieutenants who are living in the completely-furnished "laboratory rooms" and carrying out duties similar to those which Academy cadets will perform, Quarles said.

The project is under the supervision of Col. Albert E. Stoltz, director of the Air Force Academy Construction Agency which has the mission of constructing the modern service school.

## Efficiency Depends On Human Comfort

Disclosing details of the study, Col. Stoltz said, "It is recognized that human efficiency depends on human comfort. Because much of the cadet's actual learning will come from his after-classes studies, it is essential that conditions in the dormitory rooms be coordinated and designed to provide the most efficient 'learning climate' possible.

"The problem is especially critical in this area," Col. Stoltz continued, "because of the intense daytime sunlight, cold nights, rapid outside temperature variations, and climatic changes.

"Before proceeding with construction of the buildings we must determine how they will be affected by these conditions."

Col. Stoltz pointed out that the project will also make possible the testing of room arrange-

ments, furnishings, lighting, sound, and equipment—even doorknobs—before they are installed in the completed buildings.

Instruments used in the experiment include a radiation detecting device called a two-sphere radiometer which was developed by Honeywell research scientists to study the effect of sunlight on residential, school, office, and factory heating and air conditioning.

Consisting of two dissimilar sensing elements, it measures and records the effect of sunlight on inside temperatures, shows what happens indoors when the sun goes down or is obstructed by clouds, and measures the gain or loss of radiant

heat due to sunlight, bright skies, or cold walls and windows, engineers stated.

Findings are being analyzed by Honeywell scientists in the company's comfort research laboratories at Hopkins, Minn.

"It is our hope," Col. Stoltz said, "that these studies will not only help us in training future Air Force officers but will also make a significant contribution to the study of comfort in homes, efficiency in offices and factories, and pupil-learning.

## Air Duct Names Dutton In Sales

HARTFORD, Conn. — Appointment of Robert S. Dutton to the sales force of the Air Duct Div. of The Wiremold Co., has been announced by John D. Murphy, president.

Dutton will serve as a special salesman working out of the main office in Hartford.

## Janitrol Appoints Williamson to Post

OMAHA, Neb.—The appointment of Ola E. Williamson as sales engineer for the Janitrol Heating & Air Conditioning Div. of Surface Combustion Corp. has been announced here by Don A. Albert, Omaha district manager for the division's sales.

Williamson will represent the Janitrol line in the states of Nebraska, Kansas, and the Dakotas.

His office will be located at 1133 Redick Tower, here in Omaha.

Prior to joining Janitrol, Williamson was the owner of his own heating and air conditioning contracting firm in Omaha. He has had previous experience with Yates American Machine Co. as a sales engineer, it was added.

## Airtemp Names Karnell N. J. District Manager

DAYTON — An appointment to the New York regional sales staff of the Airtemp Div., Chrysler Corp. has been announced by F. J. Laughna, director of regional operations.

John Karnell has been appointed district manager for the state of New Jersey. Most recently, Karnell was associated with the Northeastern Engineering Co., Patterson, N. J., as sales engineer.

His headquarters will be the Airtemp New York sales office.

## Carrier Names Burgmeier

SYRACUSE, N. Y.—Frank H. Burgmeier, well-known local television newscaster, has joined the public relations department of Carrier Corp., it was announced by John K. Barnes, director of public relations.

quickest way to design  
dependable control  
into any  
packaged air conditioner

**MODEL 214**  
For air-conditioning applications. Adjustable or non-adjustable superheat. Non-adjustable valves completely hermetically-sealed. With or without external equalizer. Solder-type fittings.

F12	F22
1, 2 and 3 tons	2, 3 and 5 tons

**MODEL 217**  
Adjustable superheat: 2° to 20°F. Standard inlets: 1/4", 1/2", 3/4" and 1" O.D. solder. Standard outlets: 1/4", 1/2" and 1" O.D. solder.

F12	F22
2, 3, 7, 11 tons	3, 5.5, 11, 17 tons

**3 key thermostatic expansion valves cover capacity requirements from 2 to 40 tons**

**MODEL 218**  
New trouble-free disc and seat design. Adjustable superheat: 2°F to 18°F. Flange-type inlet and outlet connection: 1/2", 1" and 1 1/2" O.D.

F12	F22
16, 19 and 25 tons	25, 30 and 40 tons

for complete details, write:

**A-P CONTROLS DIVISION**  
CONTROLS CORPORATION OF AMERICA  
2460 N. 32nd Street, MILWAUKEE 45, Wisconsin  
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**DEPENDABLE Controls**  
For Air • Gases • Liquids • Refrigerants



## Inside Dope

By GEORGE  
F. TAUBENECK

(Concluded from Page 1, Col. 1)  
the ton-versus-horsepower problem right into the manufacturer's lap. So, where do we go?

Frankly, I am sure that most of us who have been in this business several years have, in effect, stamped on our consciences so many times that we can revert to the good old ton with literally no conscience pains whatsoever. If so, why talk one language in specification literature and a different language in public advertisements? I submit that such double-talk is far worse than the technical misuse of the terminology "ton" in regard to window air conditioner capacity.

Since the buying public's impression of window air condi-

tioner sizes may already be set for 1956, on the basis of practically 100% retail ads talking in tons, I suggest we confess what we actually intend to do . . . use tons for ratings. (Attached please find my 1956 pledge card marked "rescinded.")

How does it look to you?

R. F. ABELL,  
Buyer

### How About 'Comfort Degrees'?

Frankly, Mr. Abell, the General Public doesn't understand "horsepower" (as it relates to a stationary object) or "tons" (most householders mistakenly assume that "tons" refers to the weight of an air conditioner—and that scares them). So neither yardstick makes much sense to purchasers.

Via "the grapevine" we hear

that ARI members will agree to stress B.t.u.'s in 1957 advertising, instead of "tons" or "horsepower." That's an honest advance, to be sure.

But what prospect for air conditioning understands the significance of B.t.u. (British Thermal Unit) measurements?

What this industry needs is a new WORD for air conditioning output. A popular word—one which ordinary folk "dig." Any suggestions?

As a thought-starter, how about "comfort degrees" as a synonym for B.t.u.'s?

### Phooey to the Saturday Evening Post

Within the space and time of two weeks *The Saturday Evening Post* alarmed too many people in refrigeration and air conditioning unnecessarily.

Initial "scare story" pro-

claimed that antibiotics soon would replace refrigeration as a method of preserving perishable foods. That fright-cap can be answered easily:

Americans, we are sure, will prefer cold beer and coke, frozen desserts, chilled salads, ice cream, satisfying cool milk, *et cetera*—over lukewarm irradiated proteins or antibiotic-inoculated carbohydrates.

### Another Boo for Post Scaremongers

Second scare-story in the weekly *Post* attempted to prove that our climate will grow colder, "inch by inch," during the upcoming 80-years-or-so.

Already this prognostication has disturbed subscribers to AIR CONDITIONING & REFRIGERATION NEWS. "Does that indicate," they are asking, "we shouldn't bet further on the progress of air conditioning?"

ANSWER: Of Course Not.

In the first place, the *Saturday Evening Post* weatherman is almost alone in his predictions of doom for the cool-comfort business. Practically every other respected climatologist forecasts continued long-term warming-up climates for the heavily inhabited northern areas of our Earth.

However, let's grant that the *Saturday Evening Post* prophecies could come true. What then? Here's one answer.

PEOPLE HAVE BECOME  
CONDITIONED TO AIR CON-  
DITIONING.

They work, play, and ride from here to there in air conditioned comfort. NOW THEY WANT TO LIVE (and sleep) likewise—as proved by their PERSONAL purchases of automobile and residential air conditioning in recent months.

### Air Conditioning Has Become a Habit

Whether or not this-or-that weather forecaster is right or wrong about long-term climate trends, most American citizens

truly believe that "it's getting warmer every year."

Reason: Air conditioning in their offices, factories, retail stores, and transportation (planes, trains, autos) make them dissatisfied with high-humidity-and-temperature conditions at home and outdoors.

Even naturally cool resort area hotels such as those in upper Michigan are being forced to install air conditioning (the reverse of "coals to Newcastle") because guests demand it.

People want it. They work, travel, and play in zones of air conditioned comfort. Logical next step is to acquire PERSONAL zones of air conditioning in their homes.

Really, residential air conditioning is relatively inexpensive. Families who deplore hot summers spend money to escape their hot homes via autos to air conditioned restaurants and theaters.

### It Saves Budget Money, Too, In the Home

Furthermore, a complete home air conditioning system is a money-saver via these practical considerations:

(1) Rugs, drapes, wallpaper, carpeting, furniture, and appliances seldom need cleaning.

(2) Allergies, colds, and other health problems are overcome.

(3) Anything a man buys for his family—a house, car, furniture, appliances—usually depreciates overnight. EXCEPTION to this rule-of-thumb: air conditioning. The moment you add air conditioning to your home (and at least for three years thereafter) air conditioning enhances the value.

(4) Air conditioned homes are happier homes. Fewer tensions, or perspiring arguments take place when Pa, Ma, and the kids are quietly comfortable.

(5) Housewives don't fume over petty exasperations—such as hardened salt shakers, stuck drawers, kitchen odors, or soggy breakfast cereals — IF their homes are air conditioned.

## TYPHOON WATERLESS Air Conditioning

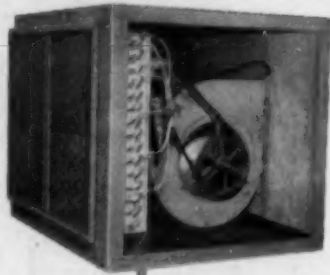


### 2-3-5-8-10 TON WATERLESS UNITS

New air cooled units, easy to install, need no plumbing



When water is short, impure, costly — or where sewer tax is a problem — you can handle the job easily and economically with a Typhoon waterless air-cooled condenser. Units are easy to install and require little or no maintenance . . . deliver full capacity in hottest weather . . . give you a powerful selling plus! Round out your line with Typhoon waterless air conditioners—full range of sizes up to the exclusive 10 ton unit.



#### Superior Typhoon Engineering:

**Centrifugal blower** eliminates wind resistance factor, overloading of fan motor . . . adaptable to duct work.

**Bigger condensing surface**—more cooling capacity with less electrical input.

**Self-contained or remote installation**—for most advantageous positioning.

**Non-stop performance** even in hottest weather because compressor is never over-loaded.

**Quiet**—slow speed blower with belt-driven, ball-bearing drive cuts noise level.

**Weatherproof design**—all components housed inside cabinet for outdoor installation by refrigeration contractor.

**TYPHOON**

Specialists in Air Conditioning Since 1909

Typhoon Air Conditioning Co., Inc.  
505 Carroll St., Brooklyn 15, N. Y.

I'd like to know more about selling Typhoon Waterless units.  
Send me Bulletin A-16.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

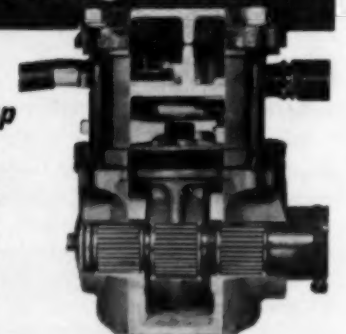
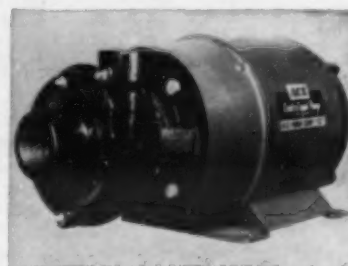
Zone \_\_\_\_\_

State \_\_\_\_\_

## ACE, the quality line for air conditioning and refrigeration

### MODEL 77 Diaphragm Descaling Acid Pump

Descaling compounds can't affect this pump! All parts in contact with compounds are completely acid-resistant. Can be supplied as portable unit with pump and motor mounted on sturdy base and with convenient carrying handles.



### Plus a complete line of centrifugal pumps

. . . sized to fit your needs. 1/4 H.P. thru 7 1/2 H.P. Easy to install and compactly built. Advanced features include exclusive baked-on lifetime finish to enhance appearance and resist corrosion, John Crane mechanical seal, and all-bronze one-piece impellers. Continuous duty motor.

Manufacturers representatives and distributors' inquiries invited.



**PUMP CORPORATION**

140 HERNANDO ST. • MEMPHIS, TENN.





ONE OF Frank Samuels Co.'s representatives shown helping at a checkout stand at a Phoenix, Ariz. super-market opening as part of the firm's goodwill plan.

## Contractor Builds Goodwill, Prospects By Helping Out at Market Openings

PHOENIX, Ariz.—Lending a helping hand to food store owners on "grand" openings has paid off in developing goodwill and new prospects for a local commercial refrigeration equipment contractor.

Frank Samuels Co., which handles Hussmann Refrigerator Co. commercial units, after completing a sale, not only helps the market operator develop his refrigeration system and fixtures, but then Samuels details his entire staff to assist at the store opening.

Working at check stands, acting as hosts who greet and conduct visitors on a tour of the establishment, Samuels' employees aid the harassed operator. They wear large plastic buttons bearing their firm's name and thus gain attention.

It isn't entirely coincidental that the veteran contractor's men point out refrigeration ideas to anyone who will listen. Many other store owners and chain store managers visit grand openings in their area to keep abreast with developments. This offers an excellent opportunity for Samuels' staff.

In business since 1928, several times the Frank Samuels Co. has won national awards from Hussmann for "excellent commercial refrigeration sales" in sparsely-populated Arizona. Today, at 73, Samuels believes his policy of spending as much time with customers after the sale as before has definitely proven its worth.

Every salesman follows a program of repeat calls where-

ever installations have been made to remain abreast of market owners' experience with equipment and to reduce chances of ill will.

## 3 Full Cooling Unit Production Lines at New Frostrode Plant

PONTIAC, Mich.—The Frostrode Div. of Warren Alloy has just completed the transfer of its manufacturing machinery to its new and greatly expanded quarters at 421 Ferry St. here.

The new plant has three complete production lines for the construction of Frostrode cooling units for coolant chilling for machine tools, solvent stabilizing in dry cleaning plants, and air conditioning in homes.

The Frostrode Div. is managed by John Rise, who has been chief engineer of the company since 1942. Frostrode sales manager is Bob Stewart, recently with J. Geo. Fisher & Sons and J. M. Oberer, Inc.

The new quarters give Frostrode larger facilities.



W. E. Lauterbach



L. E. Gustafson

## Dole Ups Lauterbach To Chief Engineer; Gustafson In Sales

CHICAGO — Dole Refrigerating Co. announces the appointments of W. E. (Ned) Lauterbach as chief engineer and Leonard E. Gustafson as district representative covering Texas, Louisiana, and Mississippi.

Formerly, Lauterbach worked on new products in the Research & Development Dept. of Dole

Valve Co., also located in Chicago.

Previous experience in the refrigeration industry includes service on the staff of Armour Research Foundation as assistant supervisor of materials engineering, and later as chief engineer of the Albright Co., where he was instrumental in the design and production of the Col-Flake ice maker.

Gustafson, formerly head of the Order Dept. at Dole headquarters, will assist J. A. Wilkerson, field engineer, in Dole's south central territory. His address is 3133 Hudnall St., Dallas.

## Bush Elects Schatz

WEST HARTFORD, Conn.—Election of S. Michael Schatz as a member of the board of directors of Bush Mfg. Co. was announced here recently.

A member of the Connecticut and New York bars since 1942, he joined the law firm of Schatz & Schatz in 1946.



# It's great to be a Carrier dealer—with all these Icemaker and Flakemaster features to sell!

### Features of Carrier's 8 Icemakers

- Models for cubes and for cubes plus three grades of crushed ice!
- Rugged, compact units, occupying only 24" x 25" of floor space!
- Jet action self-cleaning after every ice harvest!
- Simplified operation, no complex mechanisms to service!
- Waist-high ice storage bins, no stoop, no squat!

### Features of Carrier's 3 Flakemasters

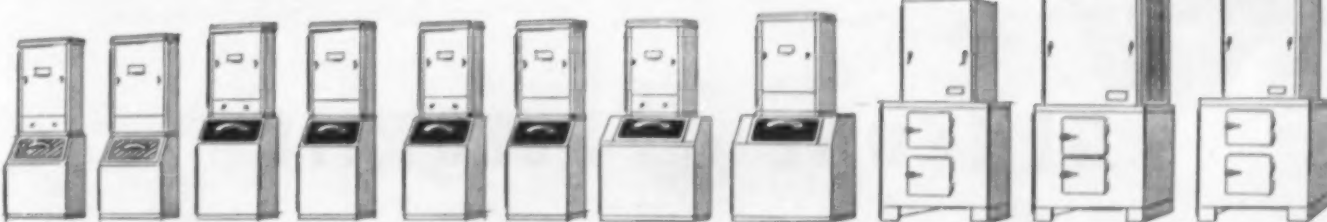
- Hard, dry, flaked ice that never mushes or freezes together!
- Simplified design, few moving parts, no refrigerant seals!
- Separate bin and icemaking sections for installation flexibility!
- Completely automatic operation with self-cleaning action!
- Choice of air-cooled or water-cooled high-production models!

### Plus certified capacity on every model

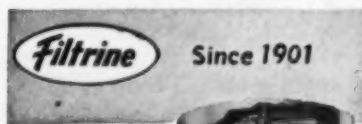
There's a Capacity Certificate to cover every model of Icemaker and Flakemaster, every operating condition. No vague promises of "up to so many pounds of ice per day." Your prospect knows he'll get every pound he needs. It's certified in writing!

**Carrier**

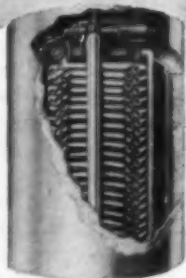
automatic ice machines



For more information about products advertised on this page use Information Center, page 32.



**Tank Type WATER COOLERS**



- ◆ Extra-large storage
- ◆ Safety from freeze-up
- ◆ Fast hourly recovery
- ◆ 20-year life construction

Capacities: 5 to 500 g.p.h.  
Storage: 2 to 240 gals.

Water coolers for all uses factory-packaged with your condensing unit. Write for literature.

**FILTRINE MFG. COMPANY**

216 W. PROSPECT ST. • WALDWICK, N. J.



## Ranco 6-Month Sales at All-Time High; Von Der Scher Takes Norco Field Post

COLUMBUS, Ohio—Sales of Ranco Inc. for the six months ended March 31 were \$14,061,543, the highest for any six-month period in the company's 42-year history, A. M. Hoover, president, reported. They were \$11,374,140 in the like period last year.

Hoover said Ranco's sales of temperature controls to the air conditioning industry were 16% greater in the first six months of the current fiscal year than a year ago. Refrigeration controls were up 15% and specialty controls were 31% higher, it was noted.

Net earnings for the six months this year were \$1,413,987 or \$1.41 per share after provision for income taxes, com-

pared with \$1,162,830 or \$1.16 per share in the corresponding period a year ago. Earnings before taxes were \$3,149,687 this year against \$2,597,030 last year.

March quarter sales this year were \$7,384,333 compared with \$6,677,209 in the previous quarter and \$6,776,713 a year ago. Net earnings for the quarter were \$739,867 or 74 cents per share compared with \$674,119 or 67 cents per share in the previous quarter and \$850,508 or 85 cents per share in the like 1955 period.

Earnings before taxes were \$1,649,667 compared with \$1,500,019 in the previous quarter and \$1,872,308 in the March quarter last year.

LOS ANGELES — Appointment of Floyd Von Der Scher as technical field representative has been announced by Norman H. Lee, head, Norco Sales Corp.

Von Der Scher was formerly with Servel for 24 years and served as appliance service manager of the Sales and Service Div. in the western states. His background with the company includes extensive manufacturing experience in its factory.

At Norco he will represent the company in all matters of servicing and installation of Krefft convertible refrigerators, Vaillant instantaneous water heaters, and other Norco products. In this capacity he will call on trailer manufacturers and dealers, the boating industry, and LP-Gas distributors.

DRIVER for Chance Vought Aircraft's Dallas plant, sits in his comfortably Frigikab air conditioned tractor cab as plant guard signs out his precious cargo—a Chance Vought Regulus Guided Missile. Regulus was delivered to Edwards Air Force Base, 100 miles northeast of Los Angeles, 1,443 miles from Dallas, four days later. Officials disclosed that prior to air conditioning tractor cabs, it took a full day longer to make the cross-country trip because of frequent stops

made necessary by fatigue and dehydration due to intense heat.



### Cab Cooling Cuts Urgent Cargo Carrying Time

DALLAS—Installation of air conditioning in tractor cabs is saving a full day's driving time transporting Regulus guided missiles and other urgent cargo from the Chance Vought Aircraft plant at Dallas to Edwards

Air Force Base, 100 miles northeast of Los Angeles, an aircraft company executive disclosed recently.

Chance Vought's manager of traffic and transportation, Grant Bunnell, announced that beginning last summer—when the company equipped some of its tractor cabs with a Dallas-manufactured air conditioning unit called "Frigikab"—the rugged 1,443-mile, cross-country trip has been cut from five to four days. This time-saving, according to Bunnell, represents a saving alone in operational cost of between \$50 and \$60 for each trip.

"The time conserved in making urgent cross-country deliveries is, of course, as important to us as the saving in cost," Bunnell said.

"The fact remains that we are saving enough on purely operational costs—not figuring in depreciation—to amortize the cost of a Frigikab air conditioner in about five trips to the coast," he added.

Bunnell attributed the remarkable saving in driving time to the fact that with air conditioning, drivers can remain efficient on the road for longer unbroken periods of time. He said that prior to air conditioning drivers found it necessary to stop numerous times to rest, or for refreshments to compensate for dehydration.

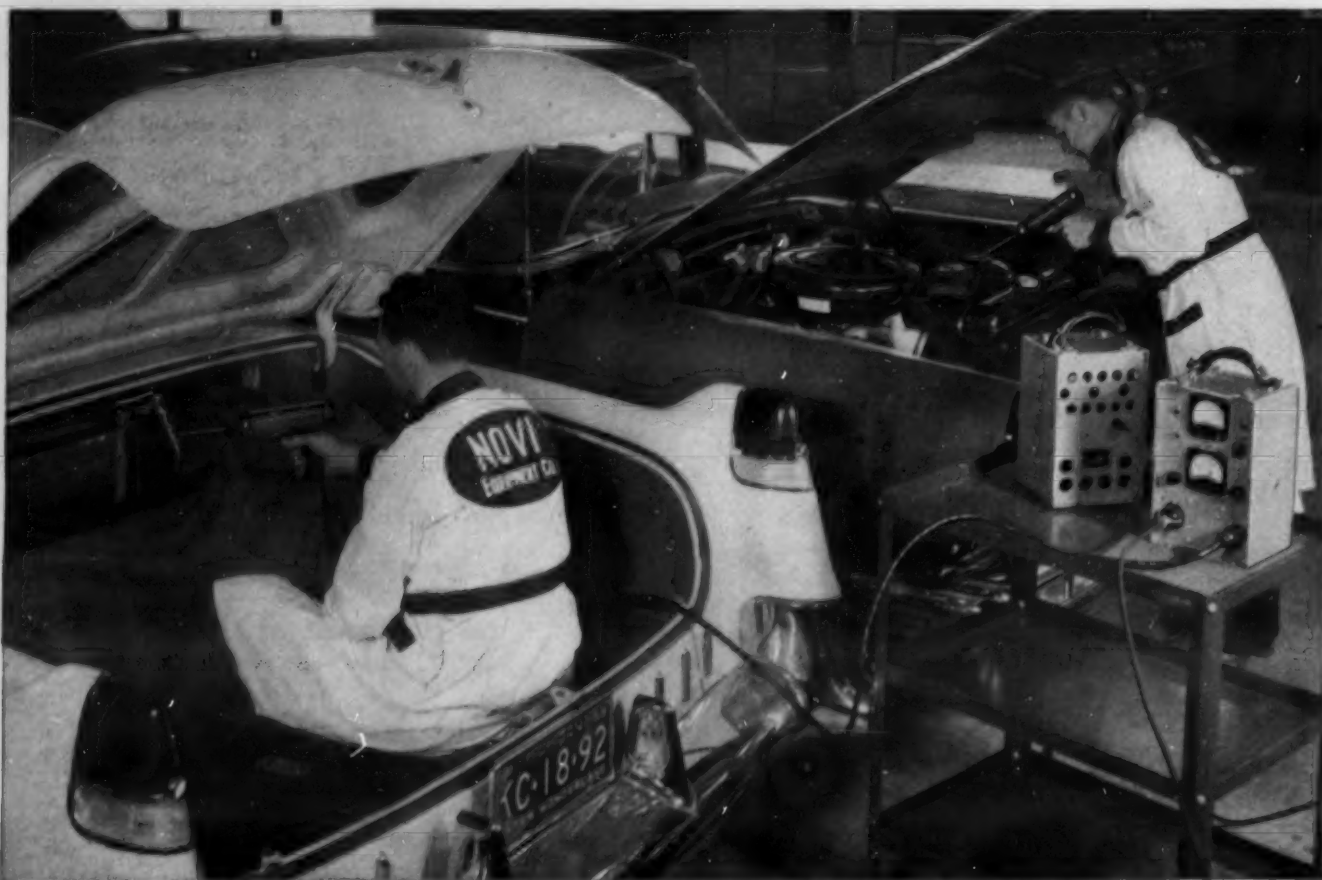
"Our drivers can now stay safely and comfortably at the wheel for 150 miles at a stretch on the severest summer days, without a coffee or coke break. And they do this of their own volition, knowing that above everything else we want them and their cargo to arrive safely," Bunnell stated.

The Chance Vought drivers questioned, said they use the air conditioners 10 months in the year.

A. M. Johnston, a driver with the company for six years, considers air conditioning in the big International he operates, an important contribution to safety and a vital health factor.

"Instead of sitting in a steam bath for hours like I used to do, I'm in a cool, comfortable place. I used to get painful blisters from the hot wind and I'd get so terribly sleepy, especially after eating, that I'd have to stop for coffee or run the risk of wrecking the equipment, the cargo, and myself," Johnston further said.

"If the ICC would let me, I'll bet that with a Frigikab unit in my cab, I could drive 14 hours without stopping to sleep. I arrive in California as fresh as when I left Texas."



RAPID, ACCURATE CHECKS ARE MADE ON AIR CONDITIONING SYSTEMS BY NOVI EQUIPMENT CO. SERVICEMEN WITH G-E LEAK DETECTORS

### ON NOVI CO. AIR CONDITIONING UNITS . . .

## Service Costs Cut 85% with G-E Leak Detector

"85% of our service repairs on auto air conditioning units were due to loss of Freon\* at a cost of approximately \$5.00 per repair," says Mr. Lewis W. Welch, president of Novi Equipment Company of Novi, Michigan. "Since we adopted the G-E leak detector as a standard item in our repair kits, complaints have been reduced to almost nil. We are in the process of equipping all of our 90 factory installation centers with G-E leak detectors to assure that our customers will receive the best possible initial installation."

Like Novi Equipment Company, you can benefit from these outstanding features of the General Electric Type H-1 leak detector:

**SIMPLE IN OPERATION**, the detector will locate leaks in any system which contains a halogen compound, or into which such a compound may be introduced as a tracer.

**EXTREMELY SENSITIVE**, the detector will detect a leak as small as 1/100th ounce of Freon\* a year.

**LOW IN PRICE**, the detector costs only \$604.50\*\* complete. For more information contact your nearest General Electric Apparatus Sales Office or write for bulletin GEC-233 to Section 585-30, General Electric Co., Schenectady 5, N. Y.

\*Registered trade-mark, Kinetic Chemical Division of E. I. DuPont de Nemours & Company.

\*\*Manufacturer's suggested retail price.



**MANY APPLICATIONS** are possible with the General Electric Type H-1 leak detector. Lightweight and portable, it also features audible leak indication.

**GENERAL  ELECTRIC**

For more information about products advertised on this page use Information Center, page 32.



## Charging, Test Board Allows Contractor To Check Operation of Almost Any Component

RICHMOND, Va.—Just about every component involved in refrigeration and air conditioning—thermostats, pressure controls, expansion valves, and motors—can be checked out on the charging and test board in the shop of Ralph W. Lampie, contractor here.

This versatile and extremely useful setup, which is changed from time to time to meet requirements of improved equipment designs, was devised by Benton Barnes, shop superintendent, with the aid of O. M. Duggans, now associated with a local parts wholesaler.

The board presents an imposing array of switches, hand valves, gauges, and charging equipment, all of which serve a definite purpose.

### Checking Controls

One of the most useful features of the board is the setup for checking controls. Installed flush with the bench surface of the board is a well constructed of 3-in. hard copper pipe. The well serves as the evaporator for a 1/4-hp. air-cooled unit located beneath the bench.

Mounted on the board is an indoor-outdoor thermometer. "Outdoor" bulb of this thermometer is inserted in the well.

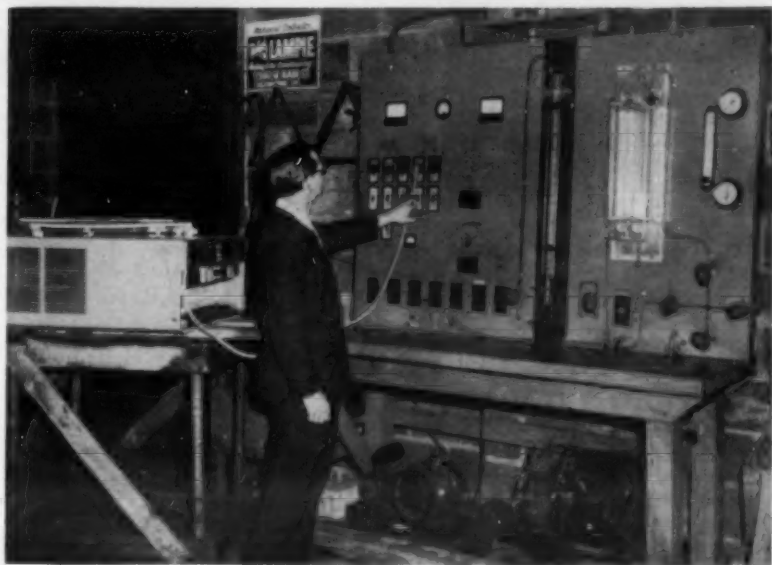
To check the cut-in and cut-out points of a thermostat, its bulb is first inserted in the well. Then by means of handy clips on the board, the thermostat is plugged into the electrical circuit of the 1/4-hp. condensing unit.

By observing the "outdoor" thermometer, which registers the temperature of the well containing the thermostat bulb, one can determine at what temperatures the thermostat cuts the unit in and out. This will show if the thermostat is properly calibrated, or out of calibration, or possibly not working at all.

This well arrangement can also be employed to check superheat settings of expansion valves, Barnes points out. Bulb of the valve is placed in the well, and the valve is hooked up to a refrigerant drum. With the condensing unit running, the valve operation can be checked by watching the thermometer and flow of gas through the valve.

### Charging Section

Section of the board devoted to charging is equipped to handle both "Freon-12" and "Freon-114," as well as alcohol. Graduates containing the refrigerants are scaled to a fraction of an ounce while that for alcohol indicates cc. Compound and pressures gauges tied into



the charging system are installed on the board.

Usual procedure in charging is first to pull a vacuum on the system with a Cenco-Pressovac vacuum pump and then break the vacuum with the measured charge of refrigerant. The board is so piped and valved, however, that dry nitrogen can be used to force refrigerant into the system.

To provide an accurate check of the vacuum pump a mercury barometer is mounted on the board. Setting of the barometer is occasionally checked with the U. S. Weather Bureau.

Approximately half of the board is devoted to electrical

test equipment, which is wired for both 110 and 220 volts.

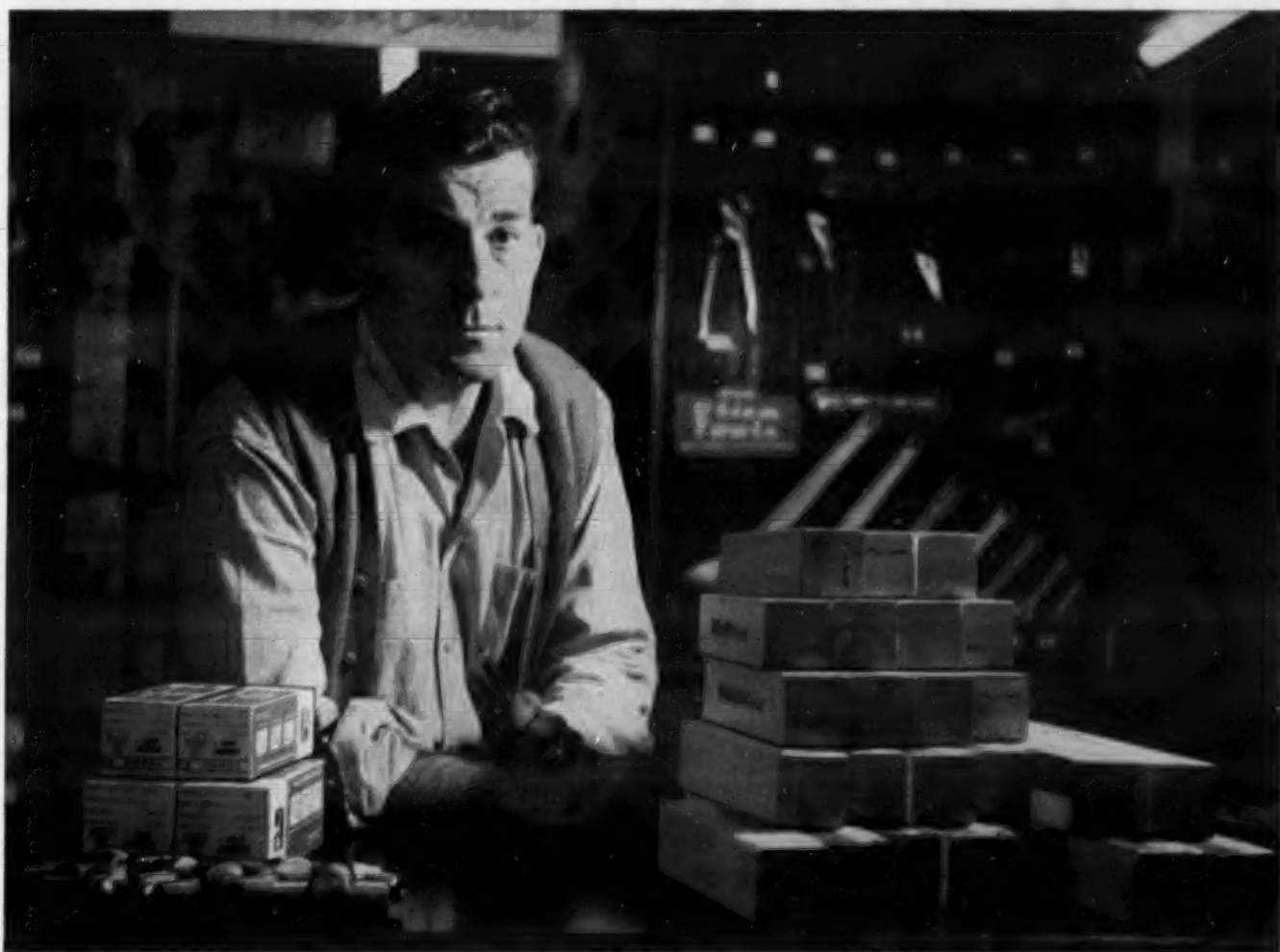
A series of capacitors is wired in the board providing capacitances of 60, 80, 100, 110, 120, and 140 m.f.d. Proper capacitance can be selected by turning a knob. These are so wired that when the toggle switch which controls the capacitors is turned off after the motor gets up to speed, the motor is supplied with straight line voltage.

The board is also equipped to permit continuity tests, give 1,200-volt d.c. tests for grounds (this current being obtained from a home-made power pack), as well as run voltage, amperage, and wattage tests on units.

Two 110-volt receptacles and three 220-volt receptacles are installed on the board. Multiplicity of receptacles is needed to accommodate the various types of plugs being used today.

Also available at the board is 220-volt three-phase current.

VERSATILE charging and test board devised by Benton Barnes (above) and O. M. Duggans, permits checks to be made on operation of just about every component employed in refrigeration and air conditioning systems. Here a window unit is being checked for running characteristics.



Compare the Ansul line on the left with a typical competitive line at the right.

## You can see how the Ansul line will cut your dollar investment in driers up to 75%

You start to save money immediately when you standardize on the Ansul line of T-Flo Driers and fittings. Service engineers and contractors who have stocked the Ansul line have been able to cut their dollar investment in drier truck stock an average of 50% to 75%.

Savings like this are possible because Ansul's 4 T-Flo Drier cartridges and 8 T-Connectors are all interchangeable. These twelve parts give you 32 possible installation combinations. Why tie up two or three times as much money in 32 ordinary driers? The Ansul line not only provides a complete stock at a fraction of the cost, but assures a better, faster drying job. For the largest installations Ansul T-Flo Driers can be easily manifolded or used on a by-pass to provide unlimited drying capacity. No need to stock large, expensive driers that you seldom use.

Changing a T-Flo Drier cartridge is the easiest thing

in the world. Breaking leak-proof flared or sweated joints is unnecessary. Just unscrew the old drier and replace it with a new one. Hand tightening will give you a leak-proof seal. And you can install the T-Flo Drier in any position, up, down or sideways.

Ask your wholesaler about the new Dry-Eye fitting, the moisture indicator which means substantial savings in both time and money to service engineers and equipment owners. The window in the dry-eye changes color to let you see if the system is wet or dry. Blue means the system is dry, pink means excessive moisture is present.

Ansul is a national distributor for DuPont "Freon"—the time tested refrigerant. ANSUL CHEMICAL COMPANY, Marinette, Wisconsin.



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For more information about products advertised on this page use Information Center, page 32.



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Every  
Time

by

Jimmy  
Hatlo



## Neither Rhyme Nor Reason In Air Conditioning Distribution

BIGGEST puzzle in the eagerly promising air conditioning industry nowadays is this unsolved problem:

*Who will sell it locally?*

Nearly every previously-trying answer to this expensive question has been unsatisfactory on a national scale.

**Take room coolers.** Willy-nilly following a volume distribution fallacy, most window air conditioner manufacturers placed their bets on unselected thousands of radio-TV-appliance dealers. The latter messed up the room cooler distribution picture alarmingly with their price-cutting and wheel-and-dealing. In the process, both they and serious air conditioning specialists lost money.

Could that happenstance be a warning to residential air conditioning producers who assume they must "go through existing channels?"

Take the obvious "lock-up" which sheet metal and heating contractors are presumed to enjoy in this end of the business. The latter hold "hole cards," it is assumed, because they install furnaces in new homes, and because their "back" departments are needed to fabricate the ductwork often required for cooling applications.

But—can EVERY ONE of these traditionally "all back and no front" purveyors of plumbing and heating equipment SELL all year around home air conditioning—which is a specialty selling job?

Too few have proved that they can. Most of them are accustomed to *bidding*, in contrast to the specialty selling methods (ringing doorbells, introducing a new product to people who don't know they need it) required for pushing residential air conditioning.

**Yet, year-round air conditioning** is the greatest opportunity most of these heating and plumbing contractors ever will encounter as local businessmen during their lifetimes.

Year-round air conditioning for homes, or summer cooling added on to existing winter heating systems, currently can be represented by a wide variety of dealers. They may be variously classified as air conditioning specialists, warm air heating

dealers, sheet metal contractors, fuel oil dealers, commercial refrigeration dealers, and a few big appliance dealers who also sell commercial refrigeration.

**Domination by one type** over any other of these hasn't truly appeared on a nationwide scale. In certain local areas one type of air conditioning outlet is out front. The situation is reversed in other localities. However, the air conditioning dealer who most often leads the pack is the veteran air conditioning specialist.

Manufacturers like Carrier, Airtemp, Worthington, G-E, Frigidaire, Westinghouse, Lennox, and York wish there were more of these "naturals" in existence. In the meantime, they are trying to fill in dead spots in their national distribution map by attempting to convert every type of outlet now on their rosters into an air conditioning specialist.

There is considerable overlapping among the various types of dealerships which sell and install commercial, industrial, and residential air conditioning—along with heating, commercial refrigeration, and appliances. And that's confusing.

Examples: many old-time heating dealers handle gas and oil-fired equipment, wet heat and warm air jobs. Furthermore, "old line" commercial refrigeration and air conditioning outlets recently have become heating dealers.

**Currently we find a continuing shift** of emphasis among many well-financed contractor-dealers of every description toward air conditioning as their Chief Business. And that's good.

AC&RN subscribers who emphasized air conditioning in the last few years sold the most year-round residential and commercial systems in most areas of our country, according to all available surveys. Will they continue to do so? Probably. All types of contractor-dealers, industry manufacturers hope, will become year-round air conditioning specialists.

The great goal of air conditioning sales managers simply is:

"Like Abou Ben Adhem, may their tribe increase."

No sooner do we cease being poor, than we become poor once more, because the scale of living has been upped.—RAPHAEL DEMOS.

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AIR CONDITIONING & REFRIGERATION **NEWS**

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F. M. COCKRELL, Founder

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VOLUME 78, No. 1, SERIAL NO. 1,416, MAY 7, 1956



## OFF THE CHEST

Portland Fixture Co.  
338 Northwest Fifth Ave.  
Portland 9, Ore.

Editor:

RE: Your editorial; "Recognize Anyone on This List."

Yeah! I sure do. Also knew a two-owner firm in business for years; making money, satisfied employees, everything fine, then 'long came a business consultant. Result: utter confusion. Old employees quit, started new competing company. Old company has been under "bank control" ever since, and new company their No. 1 competition. Need new business consultant.

EMERY E. WILSON

P.S.: Not our company. We are confused, but making a living. Never sold a freezer on a food plan.

E. I. du Pont de Nemours & Co.  
Wilmington 98, Del.

Editor:

I have noted from the recent issue of The News that the sale of freezers in 1955 dropped sharply below the sales of 1954. I believe I know the reason.

There is no doubt in our household that these appliances are hazardous. Several days

ago my wife opened our upright job and a roast of beef fell out and banged her on the toe. She is still limping.

I suggest that a pair of steel toed shoes be provided with each upright freezer.

N. C. COOPER

Chrysler Corp.  
Detroit 31, Mich.

Editor:

In a recent Canadian paper the attached clipping brought to light a condition which probably caused someone a very red neck.

I pass it on to you with a suggestion that you consider it for your "Dope" column.

"Shiver 19 Years, Heat Valve Shut."

"Vancouver (CP)—For 19 years the heat was piped toward the coroner's office here, and for 19 years the workers inside shivered during winter months.

"Workmen installing a new heating system unit today found out why. A main valve controlling the system was not opened when the original unit was installed in 1936."

Ken L. CROPEAU,  
Airtemp Sales Mgr.,  
Export Div.

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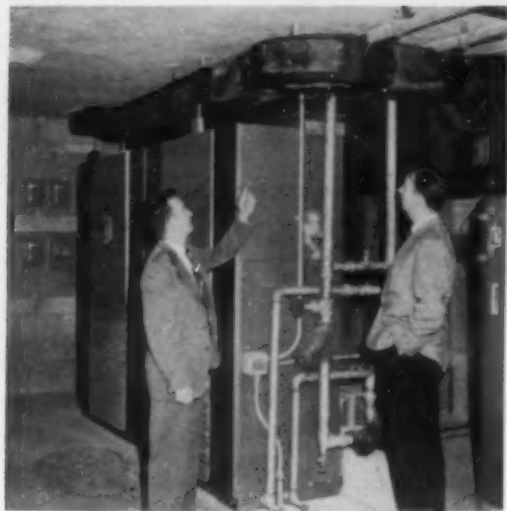
Company.....

Street.....

City..... Zone..... State.....



## Supplier Applies Own Products, Methods To Air Condition New Headquarters



IMPORTANCE of good vapor barrier on ductwork is emphasized by John Moffitt, engineer with A. Lynn Thomas Co., Richmond insulation supplier, who points out to Ed. Burrell careful sealing of joints on ducts of 20-ton system serving company's new building. To complete job ducts will be covered with canvas and painted white.

RICHMOND, Va.—New headquarters here occupied by A. Lynn Thomas Co., Inc., supplier of insulation, filters, registers, etc., to the air conditioning and heating trades in a three-state territory, not only is air conditioned but features many of the products and application methods promoted by the firm.

Founded in 1894, the firm recently moved to a new 25,000-sq. ft. building providing offices, meeting rooms, display and sales room, extensive warehouse space, and a kitchen for employees.

The building is on a four-acre site beside the main railroad line through Richmond, and has a siding that will accommodate three freight cars. Truck docks and plenty of parking space for customers and employees are also provided.

### Two 10-Ton Units Air Condition Building

Air conditioning system, which was installed by Gundlach & Co., local contractor, consists of two 10-ton General Electric package units connected to ductwork. All ducts in the building are wrapped with Microlite insulation.

The firm represents such manufacturers as L.O.F. Glass Fibers Co., American Air Filter, Midco Register, Ruberoid, Minnesota Mining, Permacel, and others. It maintains branch offices in Norfolk, Raleigh, Charlotte, and Columbia, S. C.

Wilton L. Thomas, son of the founder, is president of the firm; Richard G. Lewis, vice president; Arthur D. Thomas, vice president; Mrs. Martha M. Thomas, secretary-treasurer.

As a specialist in insulation, the company has some definite

many designers and installers of air conditioning systems are overlooking the need for a vapor barrier.

### Should Have Vapor Barriers on Ducts

"People who designed warm air heating systems for years and then switched to air conditioning don't think about the vapor barrier on ducts," he says. "If a vapor barrier is not applied outside the duct insulation, condensation may occur on or close to the duct itself."

"This cuts down the value of the insulation, and the moisture may attack the adhesive holding the insulation to the duct," points out Moffitt.

"A good vapor seal," he also says, "will protect the duct insulation should a leak develop in the roof. The insulation value can possibly be reduced as much as 50% by moisture in insulation."

## Activated Carbon Filters Solve Photo Fogging Problem on Sensitive Plates

DANBURY, Conn.—Activated carbon equipment made by Connor Engineering Corp. here recently was instrumental in solving a chemical reaction problem in a photographic printing plant in Cleveland, the company reports.

For direct printing of name plates, dials, diagrams, scales, and similar products, Metalphoto Corp., Cleveland, recently introduced a photosensitized aluminum plate, it was added by Connor.

The 0.0005-in. thick anodized surface of the plate in which the image is imbedded by photographic printing is so sensitive, it is claimed, that production runs were occasionally spoiled by fogging. This is a chemical reaction caused by sulphide gases which seeped into the

printing plant from nearby industrial areas, the company emphasized.

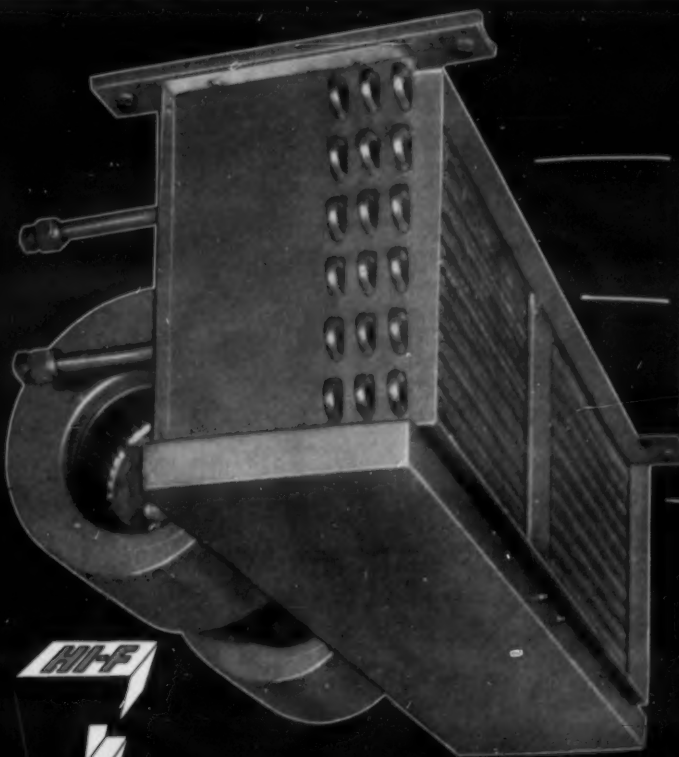
Although these gaseous contaminations were in extremely low concentrations, the company continued, they still caused severe damage to plates.

By maintaining slight air pressure within the section where the plates were made light-sensitive, creating outward air movement, and by admitting all ventilating air only through activated carbon filters, the problem was solved. There has been no recurrence of trouble since the filters were installed a year ago, the firm states.

According to R. A. Kempe, Metalphoto vice president, the filter system cost less than half the loss resulting from one batch of damaged plates.

# CONCEAL-X

THE NEW AIR CONDITIONING UNIT THAT REQUIRES NO FLOOR SPACE



FOR USE WITH FREON  
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and  
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ZELLENFELD, PA.



# How To Build Commercial Refrigeration Into a \$2,000,000 Business

By C. Dale Mericle

HOUSTON, Texas — In an of? Why, America is here to stay." Refrigeration, however, was not exactly an unknown field for Jim and Pete, because the father, H. D. Pappas, now retired, got into it back in 1936 as Dallas sales manager for Zero Plate Co.

The gambling term "parlay" is perhaps not inappropriate to describe the almost incredible growth of Pappas Refrigeration Co., for, as Jim Pappas, president, puts it:

"We Greeks are gamblers. When my brother Pete and I were debating about starting the business, our father commented, 'What are you afraid

the eight-story Varner Bldg. in downtown Houston last year. On top of this investment, the Pappas brothers are spending another \$300,000 in remodeling.

In terms of footage, this move made Pappas Refrigeration probably the largest commercial refrigeration distributor in the country, although the brothers themselves make no claim on that score.

Does the firm actually need all the space contained in the structure, which covers a full half of a city block?

Some refreshingly frank answers on that are given by Jim Pappas.

"We were bulging at the seams in our former location, and are actually occupying 90,000 sq. ft. here," he says. "We have 60,000 sq. ft., how-



VAST display of commercial equipment on sales floor of Pappas Refrigeration in Houston provides almost endless choice for prospects.

ever, available for lease."

Besides the need for more space, though, there were other motives behind the move, he reveals.

## Excellent Investment In Real Estate

First, the brothers figure it's an excellent investment in real estate. Besides the rental income from space their own firm doesn't occupy, they hope ultimately to increase the "take" from the property by building an eight-story parking garage on the section now occupied by a 1½-story section of the structure.

There were a couple of intangibles involved, too.

## Building Purchase Booms Credit Rating

"It was amazing," Jim revealed, "how sharply our credit rose when the purchase of the building was announced. People who had been dubious about extending us credit, as well as a lot of people we never heard of, rushed to offer us all the credit we needed."

The building serves also as an excellent "fly-catcher," Jim adds, explaining that all four brothers can be interested in money-making "propositions" aside from their present business interests.

Since they purchased the building, hardly a day passes that a "golden opportunity" or two isn't offered to them, he says.

There's more to be said about Pappas Refrigeration's new building, but it is also of interest to examine their operations in the refrigeration and allied field, where the company has obviously made tremendous headway in 10 years.

Even competitors agree with the company's claim that it does 95% of the bar business in the Houston area, and they also agree, though they aren't sure how it's done, that Pappas is

(Continued on page 31)

## ALLEN-BRADLEY TROUBLE-FREE MOTOR CONTROLS

have been "standard" on Vogt Tube-Ice machines for over 18 years

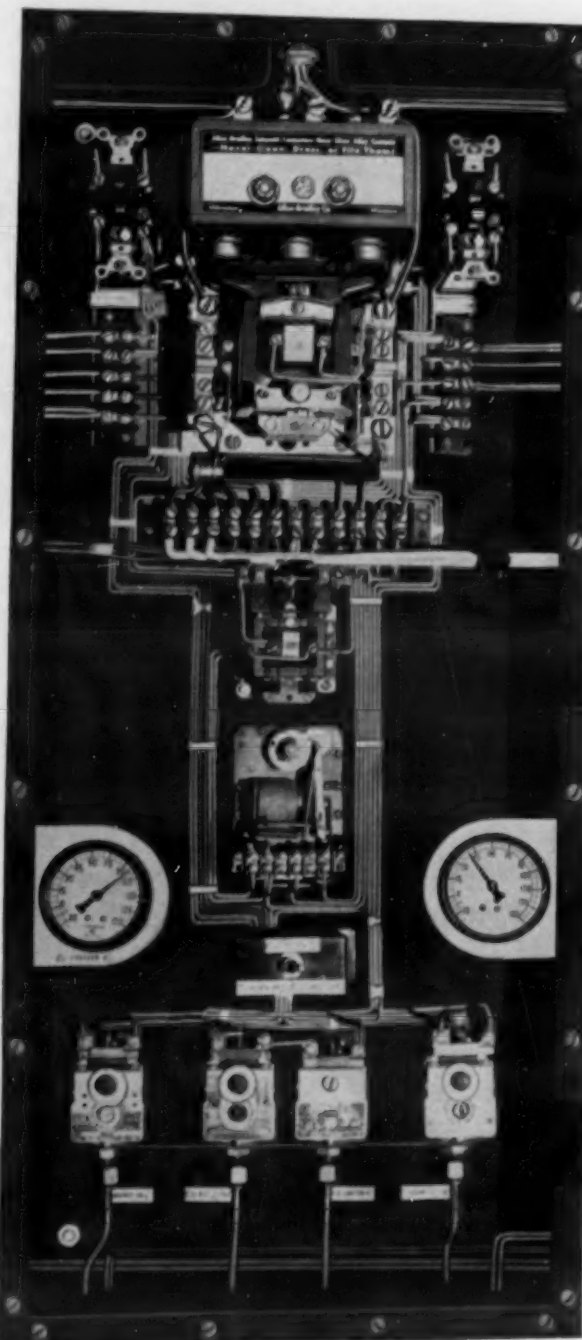
Continuously dependable service . . . that is the reason Allen-Bradley motor controls are "standard" on so many refrigeration units . . . such as the Vogt Tube-Ice machine, shown here.

The simplicity of Allen-Bradley solenoid starters makes such performance possible . . . there is only ONE moving part . . . nothing to wear or bind . . . your guarantee for continuous, trouble-free operation. The double break, silver alloy contacts never need maintenance. You can install Allen-Bradley controls . . . and forget them.

Permanently accurate thermal overload relays protect motors against burnout. Specify Allen-Bradley . . . you'll never have reason to regret this decision.

Please write for your copy of the latest Allen-Bradley Handy Catalog . . . the guide to "Quality" motor control.

Allen-Bradley Co.  
1313 S. First St., Milwaukee 4, Wis.  
In Canada  
Allen-Bradley Canada Ltd., Galt, Ont.



Above panel shows Allen-Bradley controls for 5,000 lb automatic Vogt Tube-Ice machine

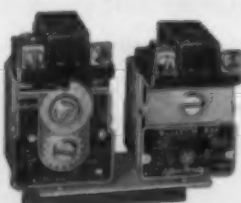
## THE SIGN OF QUALITY MOTOR CONTROL



BULLETIN 709  
Across-the-line  
solenoid starter



BULLETIN 700  
A-C control relay,  
universal type



BULLETIN 836  
High and low-  
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Tyler steps out ahead *again* with this new line, the most *complete* and *advanced* line for the sale, display and back-room storage of *all* types of perishables . . . with a new store planning service and color plan that make it easy for you to cash in on the most modern merchandising methods.

So don't let rising costs nibble away at that vital profit margin . . . *Tyler-tailor your store* to take advantage of these practical features that help you boost profitable volume *and* reduce expenses:

**NEW LOW 33" FRONT** . . . the most efficient *merchandising height*, approximates the variety store standard, set by almost half a century of profitable self-service experience! Makes it *easier* for all customers to *see, to bend and reach naturally and quickly!*

Use of this height on checkout counters already speeds up that operation. Remember, the easier it is, the faster they buy, the more they buy! Another full-line Tyler First!

**SHOPPING ZONE VISIBILITY** and quick department identification are provided by new 33" height with direct, uninterrupted view of inclined display . . . to speed up store traffic still more.

**NEW COLOR-COMPATIBILITY SYSTEM**, developed in consultation with Howard Ketcham, Inc., color experts . . . provides *removable* Vertical Trim Panels, front panels and ends, in a choice of 9 standard colors and white . . . for attractive duo-tone or single color cases . . . with suggestions for wall, floor and sign colors.

You can go *right* with color—to increase store atmosphere, to pull people in. You can go *wrong* with color, too. So play it safe. Use these approved, store-tested colors.

**NEW VERTICAL TRIM PANEL** simplifies joint treatment on continuous Sales-Cases . . . saves installation time . . . makes possible duo-tone effects, simple color accents or department identification.

**NEW QUICK-ADJUST MEAT TRAYS**, produce screens and dividers . . . instantly adjustable without clips or brackets. Can be changed without disturbing display. Easier, faster cleaning.

**IMPROVED MIRROR ANGLES** to provide best reflection of merchandise display . . . for maximum mass display effect.

**PATTERNED STAINLESS TRIM** avoids excessive reflections or glitter . . . does not compete with display . . . hides scratches.

**NO GLASS** to interfere with direct view of display . . . to smudge and need cleaning . . . to break and replace or become a hazard.

**NEW STREAMLINED SUPER-STRUCTURES**, shipped separately, simplified for fast installation, distinctive in appearance.

**LIGHT HOOD** slopes back . . . extra room for tall shoppers.

**NEW UNIFORMITY** . . . all Sales-Case models line up perfectly.

**REAR LOADING** and service with displays easier to reach regardless of height of clerk.

**EASIER ACCESS FOR SERVICING.** Provision is made for quick access to all coils, valves, drains, and connections.

**SANITARY, NO-SWEAT SILLS** for double-duty model sliding doors . . . slanted to drain away any possible moisture.

**RETRACTABLE HOSE** . . . new produce accessory, *disappears*.

**NEW BAG RACK** has adjustable back stops.

**RECESSED DOOR HANDLES** on double-duty models . . . speed up cleaning, avoid snagging.

**COMBINATION HANDLE AND STOP** on superstructure sliding mirrors and windows . . . speeds up loading, prevents damage.

**HIGH-LEVEL REFRIGERATION.** Positive No-Block circulation of cold air throughout display and storage areas. Dependable, uniform temperatures, extra-large coiling, plenum chamber and ducts.

**FULLY-AUTOMATIC DEFROST SYSTEM.** Defrosts entire system including evaporator, all air passages.

Tyler **CONDENSING UNIT ASSEMBLIES** provide perfectly balanced systems and logical arrangement for quick servicing or adjustment . . . save valuable space, avoid dangerous clutter, prevent last-minute installation delays.

**SUPER SANITATION** . . . easiest-to-clean case there is . . . display compartments with rounded corners, and smooth, unobstructed walls . . . all surfaces of stainless steel, aluminum or modern, hard-surface finishes . . . foolproof drainage system.

**LOWER UPKEEP AND MAINTENANCE COSTS.** Lower condensing unit requirements, more efficient insulation and refrigeration save you money . . . every day!

*And that vital Tyler feature—sturdy, one-piece* **WELDED-STEEL SHELL** . . . *precision-welded* with accurate jigs and fixtures . . . for strength, uniformity, longer useful life. Seals in cold, seals out heat, humidity, vermin! Protects refrigeration efficiency!



NEW ADJUSTABLE-SHELF DAIRY SALES-CASE (Series Y)

NEW FROZEN FOOD SALES-CASE (Series Y)





**CLERKS** like fast, easy **REAR LOADING**...all-around, time-saving, convenience... the way Sales-Cases keep foods in top condition!

**HOUSEWIVES** like to shop in the pleasant atmosphere of a **TYLER-TAILORED** store...colorful, well-organized, modern!

**FULL SHOPPING-ZONE VISIBILITY**... with display on incline from new 33" front. Shopper identifies merchandise quickly, from a distance...direct view, **NO GLASS**.

**DISPLAY FLEXIBILITY.** Meat and produce trays and screens quickly adjustable to 9 inclined positions. Get full mass display on slow and peak days.

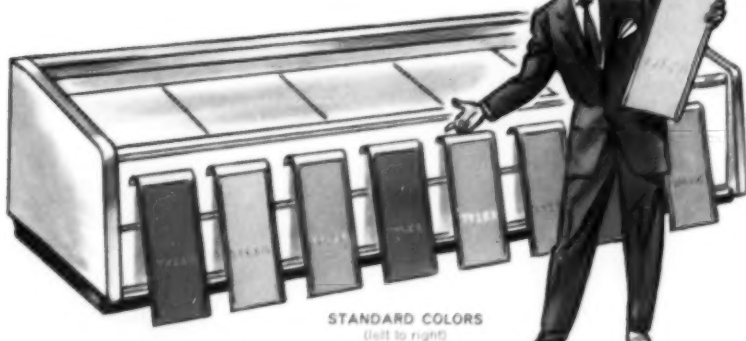
**GREATER CAPACITY**... with larger display compartment... wider from front to back and top to bottom.

**NEW TOE ROOM**... ample recess permits customer to stand close to case. Removable base offers much **EASIER ACCESS** to drain and refrigerant lines.

**NEW CART GUARD** of sturdy stainless steel protects front of Sales-Cases, and serves as raceway for wiring. Simplifies electrical work.

**NEW COLOR FLEXIBILITY**...with choice of 9 colors and white...for single color or duo-tone effects, on removable Sales-Case fronts, ends, and Vertical Trim Panels.

**NEW LOW MERCHANDISING HEIGHT:** Properly engineered 33" front on entire line! The easier it is...the faster they buy, the more they buy!



**STANDARD COLORS**  
(left to right)

Mint Green, Loflice Green, Peach Pink, Crushed Strawberry, Oatmeal Beige,  
Silver Gray, Huckleberry Blue, Ice Blue, Butter Yellow (above)

# TYLER

TYLER REFRIGERATION CORPORATION  
MILWAUKEE, WISCONSIN

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in Cleveland—Booth A-12



## TYLER-TAILOR

your food store  
for profitable  
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Take advantage of Tyler Advanced Design features . . . of the Tyler Store Planning Department . . . the sales power of color, organized for you in the Tyler-Ketcham Color Compatibility System . . . the lasting usefulness and low daily cost of Tyler food refrigeration equipment.

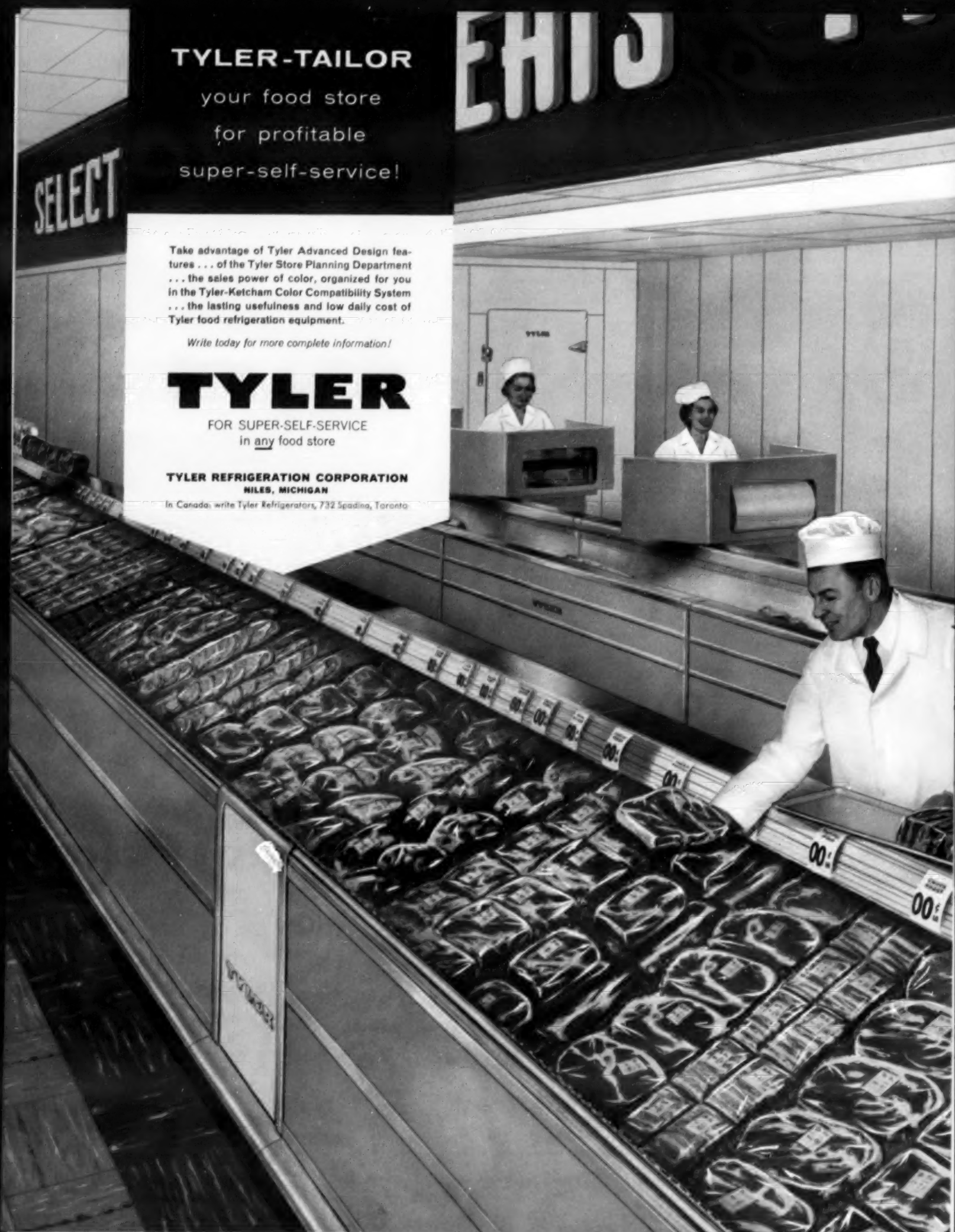
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FOR SUPER-SELF-SERVICE  
in any food store

**TYLER REFRIGERATION CORPORATION**  
NILES, MICHIGAN

In Canada: write Tyler Refrigerators, 732 Spadina, Toronto







EXTENSIVE shop facilities are a feature of Pappas organization. Here's a section of woodworking department.



BROTHERS Pete (left) and Jim Pappas parlayed \$4,000 and a hole-in-the-wall commercial business into a \$2,000,000 yearly business in 10 years. Two other brothers share ownership.



REMODELING eight-story building in downtown Houston (sale price: \$700,000), Pappas Refrigeration did most of the work itself. This general office is typical.

## Building a Business --

(Continued from page 26)

about the highest-priced operator in the field around the Houston area.

### Prepared for 'Turnkey' Job in Bars, Restaurants

On bar and restaurant work, Pappas is prepared to do the complete job on a "turnkey" basis if desired. It maintains an extensive wood-working shop and other facilities to build bars, booths, walk-in refrigerators, shelving, and the like.

About a year ago, incidentally, the firm decided to enter the complete food store business, taking on the C. V. Hill line.

Pappas Refrigeration makes a point of its high quality installations, and besides showing prospects existing jobs, the firm can now point to its own building where it did virtually all the remodeling with its own crew.

A large sales force is maintained by the company, including 20 salesmen working on commission.

### Introduced Broad Appliance Line

Although the company is still primarily in the commercial refrigeration business, it took on a broad line of appliances after moving into its new building where a big sales floor was made available.

"People who run bars and restaurants are also prospects for appliances in their homes," comments Jim Pappas.

Much of the 20,000 sq. ft. of ground floor display area is devoted to commercial refrigeration and restaurant equipment, however, and two salesmen are required to handle floor traffic in this department alone, he says.

There's more to this tremendous display of commercial

equipment than just the desire to impress prospects, Jim points out.

"This is a highly competitive field, and it's hard to sell from a picture," he says. "We figure that the man who comes in and

says he wants a reach-in but can't make a selection from the 25 different models we have on the floor really doesn't want one.

"You have to have merchandise in order to sell it, and people in the food business buy on the spur of the moment," Jim emphasizes, but he admits that

such a big inventory can present problems.

If the prices of new merchandise seem a bit steep to the prospect, Pappas salesmen can take him to the second floor which is jam-packed with reconditioned used equipment of all types.

"You don't sell a little business a luxury," Jim cautions,

"you sell him something that will make him money."

The Pappas organization is a great believer in the meter plan for selling commercial equipment, describing it as "just a systematic way to get the customers to pay their bills."

About half of its sales are (Concluded on next page)

## Crystallize your future TODAY with an

### EXCLUSIVE FRANCHISE



## for *Chip-Freeze* AUTOMATIC ICE FLAKER

Here is the line of trouble-free ice-making equipment you've asked for . . . with new scientific innovations that will make sales history!

**NO DEEP REACHING!**  
Sparkling pure chipped ice is always at your  
**WAIST LEVEL!**



### MOST SANITARY UNIT MADE!

New ice is produced at TOP of the CHIP-FREEZE unit so that there is no possibility for accumulation or decay of old ice. As you draw ice from lower part of upper section of sanitary, stainless steel storage bin, new ice is then produced at the top of the storage bin. Most equipment today has ice storage section at bottom of unit; thus, scum and dirt formations in that section contaminate fresh ice easily.

### 6 EXCITING NEW COLORS!

Today, eye appeal is sales appeal! Choose from six new decorator colors to harmonize with any interior; anyplace, anywhere! Space-saving cabinet design in beautiful hi-bake enamel color schemes makes CHIP-FREEZE unit adaptable for any location!

### SAVINGS—SAVINGS—SAVINGS

Save up to 95%! Imagine, 560 LBS. PER DAY—ice flakes for as little as 2¢ per bushel or 6¢ per hundred lbs. (depending on local power and water rates)! Pay only for the ice you need. Fills itself automatically as ice is used. Mechanism is easily accessible from front and rear. Machine turns itself on and off.



### EYE APPEAL, SALES APPEAL, ICE APPEAL for:

- Supermarkets • Restaurants • Dairies
- Bakeries • Hotels • Fish and poultry markets
- Fresh produce markets • Florists • Hospitals
- Soda Fountains • Retail Stores • Clubs

**COCORA Products**  
**COLD CORPORATION OF AMERICA**  
Manufacturers of Ice Making Equipment  
1371-89 N. North Branch St. • Chicago 22, Ill. • MI 2-4816

- Priced below competition! (Nationally advertised.)
- Fully automatic . . . (featuring new monostructure ice-making assembly.)
- Sales-tested selling plan! . . . (We supply you with leads, too!)
- Maximum output guaranteed! (Ideal for any type of water system.)
- Low installation cost . . . as easy as "A-B-C" to maintain!

**EXCLUSIVE PROTECTED TERRITORIES STILL AVAILABLE. Write, wire or call today!**

**COLD CORPORATION OF AMERICA**

ACRN

1371-89 N. North Branch St.  
Chicago 22, Illinois

Gentlemen:

I am interested in knowing more about "CHIP-FREEZE" automatic ice flakers.

☐ Mfg. Rep.

☐ Distributor

☐ Dealer

Others, please specify \_\_\_\_\_

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

**IDEAL**  
*Speed-Freeze*  
**PRODUCTS**

**BEVERAGE COOLERS AND  
INSTANTANEOUS DRAFT  
BEER COOLERS.**  
(With Refrigerated Faucets)

WRITE

**IDEAL COOLER CORPORATION**  
2953 EASTON AVE. • ST. LOUIS 8, MO.



## Distributor's Growth --

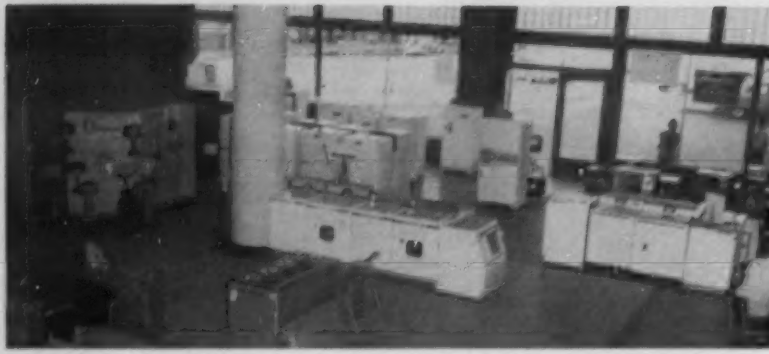
(Concluded from preceding page) handled this way, and the company now has some 2,500 meters out.

### 6 Meter Collectors

"We have six men who do nothing but collect from the meters, and we selected men for this job who have enough brass to collect the money," Jim declares. "Sure, the customers will cuss you sometimes, but they'll certainly get to know you, and actually, they'll admire you for being firm about collections."

Pappas Refrigeration does not discount its paper, but hypothesizes it, instead; that is, borrows money for working capital on the strength of the paper it holds.

As stated above, the firm does a big business in used equipment. An extensive repair



PEOPLE who run restaurants also have homes, so appliances were added recently to Pappas' commercial refrigeration lines.

and reconditioning operation is maintained for this equipment where the boxes are completely "gutted," cleaned, refitted, and painted. There's a 15 by 15-ft. steam cleaning room and an 18 by 20-ft. paint booth for reconditioning.

The company goes so far as to rewind motors itself, figuring that it costs less and helps keep its 10 servicemen busy the year-

round without seasonal layoffs. "We probably have close to \$75,000 tied up in repair and replacement parts," Jim Pappas comments. "For one thing," he explains, "we don't throw anything away."

An example is a board 8 ft. square covered with hardware removed from junked commercial fixtures. In itself this produces a fair income, for many

EMPLOYEES and tenants of Pappas Refrigeration find dining room convenient and relaxing for lunch and coffee breaks.



of these hardware items simply aren't available anywhere else.

Although the various shop and service operations occupy upper floors of the buildings, a 24-ft. long freight elevator simplifies handling of equipment and material. A large off-street loading dock for trucks is also part of the building.

The company offices are located on the ground floor, taking up some 5,000 sq. ft. A "mezzanine" over the offices proper is devoted to the firm's

engineering and layout department.

### No 'Private' Offices

Incidentally, the firm doesn't believe in "private" offices. The office shared by Jim and Pete Pappas, for example, adjoins the sales floor and is fitted with glass on three sides.

As for "privacy," the bosses' offices seems more like Times Square on New Year's Eve.

All these offices are air conditioned by means of two 7½-ton packaged units connected to ductwork. A 40-ton system is also in use to cool the offices on the eighth floor which are leased out to tenants.

### 250 Tons of Air Conditioning To Service Rest of Building

Another 250 tons of air conditioning is being installed, however, to serve the rest of the building, and should be in operation this summer. All the work of installing the air conditioning has been handled by Pappas employees.

While the company is best known for its activities in the bar and restaurant field, it gets into a variety of refrigeration applications. One such which Pete Pappas is directly concerned with is the growing field of ice-making installations for poultry and shrimp processors. (Details of these activities will be outlined in a separate article).

The Pappas brothers have made great progress in remodeling and modernizing their building, but they have extensive plans for the future. On the sixth floor, for example, they expect to have a large auditorium which will be available for meetings of various organizations as well as the company's own use.

Already the large penthouse which comprises the eighth floor of the building has been remodeled into several offices leased out to tenants.

The separate solarium on the roof has been converted into an attractive dining room for the benefit of employees and building tenants. This is operated on a cost basis.

### Human Interest In Success Story

If the story about the remarkable success of the Pappas brothers in the refrigeration industry in 10 years were to be written for a consumer magazine in typical human-interest style, as well it might be, they would be given much credit for their assistance to war refugees.

At the present time the company has 10 such people on its payroll. Some or all of these will no doubt go into business for themselves eventually, and when that happens they'll not only have the encouragement of the Pappas brothers, but, if needed, the brothers' financial support as well.

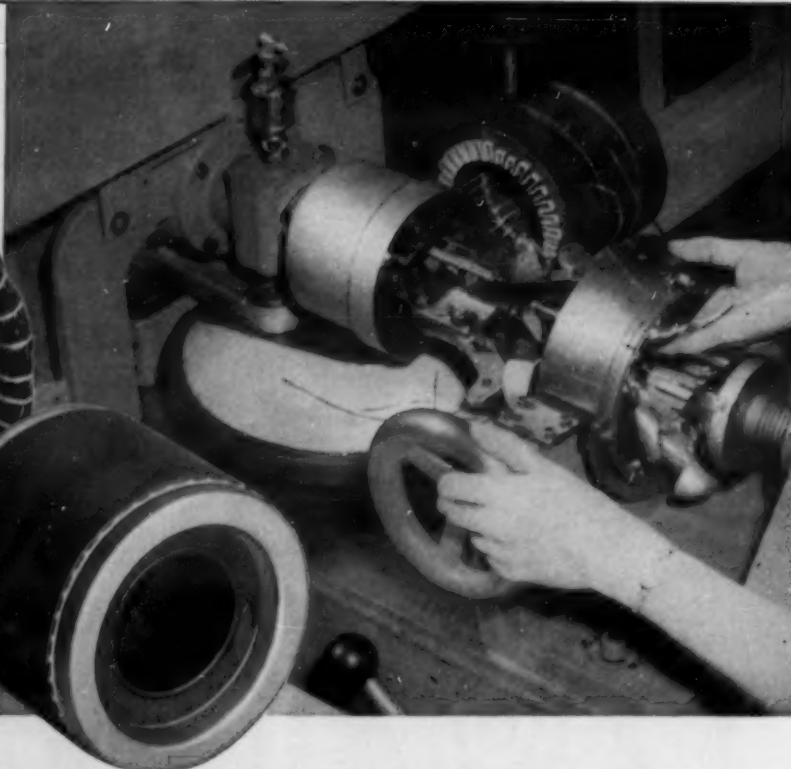
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ELECTRIC MOTORS  
... the choice of leaders  
in industry

## Design a Wagner Hermetic Motor into your next sealed unit

This stator winding machine, especially designed by Wagner engineers, is a part of the modern production facilities used for quantity production of Wagner Hermetic Motors.



**POLYPHASE**—1 to 10 hp, 3 phase, 60 cycle, 208, 220 or 440 v. Squirrel-Cage.



**YOU'LL GET ... carefully built, thoroughly tested, performance-proved motors that you can seal for life!**

Wagner hermetic motors, like all Wagner motors, are known for their ability to give years of trouble-free service. Wagner hermetics are built on modern production lines—with the newest, finest production tools available. Repetitive surge and dielectric tests are given to every Wagner hermetic motor stator. Every rotor that goes into a Wagner hermetic motor is given an individual speed test.

Such exacting manufacturing techniques and quality control enable us to provide you, the manufacturer, with hermetic motors that will give years and years of dependable service ... motors on which you can safely

stake the reputation of your product.

When your motor drives are to be hermetically sealed, it's to your advantage to specify Wagner for use on your equipment. Get the facts ... call the nearest of our 32 branch offices or write us.

POLYPHASE		SINGLE-PHASE	
TYPE	RATINGS	TYPE	RATINGS
NP, Squirrel-Cage	1 to 10 hp, 3 phase, 60 cycle, 208, 220 or 440 v.	NB—Split-Phase	¼ hp, 60 cycle, 115 v.
		NK—Capacitor-start induction run	¼ to ¾ hp, 60 cycle, 115 or 230 v.
		NY—Capacitor-start and run	½ to 5 hp, 60 cycle, 230 v.



**SINGLE-PHASE**  
¼ to 5 hp, 60 cycle, 115 or 230 v. Split-Phase. Capacitor-start induction run. Capacitor-start and run.



**Wagner Electric Corporation**  
8441 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

For more information about products advertised on this page use Information Center, page 32.



## Dealer Finds Air Conditioning Outlook Bright

**Newspaper Ads, Weather Forecasting, Window Unit Rental, Room Unit Winterization Plan Help Promote Firm's Business**

By John O. Sweet

CHICAGO—"Very optimistic" about the outlook for sales of air conditioning equipment this year, Tom Reedy, president of North Town Refrigeration Corp. and its sister firm, South Town Refrigeration Corp., is planning to double last year's air conditioning promotion budget.

### 3-Month Dollar Volume Triples First 4-Mos. In '55

Reedy has good reason to be optimistic. Dollar volume of the firms' total air conditioning sales for the first three months of 1956 was three times more than for the first four months of last year, he reported.

This gain was primarily in commercial installations, Reedy pointed out. He said room cooler sales through March were slightly ahead of the like year-ago period and sales of residential units about the same as in the first 1955 quarter. However, he added, "we're much ahead on inquiries on residential units."

### Program Launched Month Earlier

The firms' air conditioning promotion program was to be launched the first week in April—a month earlier than in the past. Reedy noted that people remember last year's heat waves and that he has heard several say they're going to get an air conditioner at the beginning of the season this year.

He said that 80% of the promotional budget would be for daily newspaper advertising, covering commercial, residential, and room air conditioners. Direct mail advertising is also contemplated.

As an aid in planning promotions, the two Frigidaire sales and service firms are using a long-range weather forecasting service.

Now being worked out is a campaign to promote a window air conditioner rental program inaugurated last year. Under this plan, a consumer can rent a unit at the beginning or during the air conditioning season and use it until Oct. 15. However, if the customer desires, the time limit will be extended to Nov. 15.

### Rental Fee Can Be Applied to Unit Cost

The rental fee can be applied on the cost of the unit if the customer wishes to purchase it. Reedy said the plan proved very successful last year, with 75% of rental customers deciding to buy. Some commercial units also were rented, he stated.

Reedy said the firms try to

be very careful in making rental arrangements. Prospective customers are investigated just the same as those asking for credit, "sometimes even much more carefully."

One problem developed last year in connection with the plan. The trouble was, Reedy pointed out, that company phones were sometimes tied up with calls from persons who wanted to rent a unit for a few days and for "a few bucks." They had company coming the next week or a man's wife was coming home from the hospital and he wanted her to be comfortable.

To eliminate such calls, Reedy plans to include a specific rental

fee in promotional material this year.

Another phase of the firms' over-all air conditioning program is a 10-point "room cooler winterization" plan, now in its fourth year.

### Rental Plan Explained

Under this plan, units are removed from owners' premises by bonded, uniformed servicemen and are thoroughly steam cleaned in the shop for removal of soot, grease, and dirt. Rust spots on portions of units exposed to the elements are touched up, the units checked and tested, and the filter replaced.

The air conditioners are then wrapped in rustproof, oil-im-

pregnated paper containers and stored on special racks in an insured warehouse. Before being re-installed in the spring at the owner's convenience, the units are tested for operation. In re-installing units, servicemen also check all seals.

Complete charge for this service has been \$49.50. Reedy said a higher rate for 1½ and 2-ton units is being considered since these units are becoming more popular.

### Promotion Methods

To promote this plan, post cards are sent out at the end of the air conditioning season to previous customers of the service and to persons who purchased air conditioners from North Town and South Town during the year. Three mailings are usually made.

The plan has been very popular, according to Reedy. During the past off-season, about 350 units were taken in for winter-

ization, he said. One advantage of this setup, he added, is that it helps keep the shop men busy during the winter season.

Turning again to the outlook for 1956, Reedy commented that if sales are as good as expected, it will be difficult for installers to keep up with demand. Therefore, he said, early installations are being encouraged as much as possible.

## Airtemp Names Prince Dallas Room Unit Mgr.

DAYTON—Martin A. Prince has been appointed room air conditioner district manager, Dallas (Texas) region, for the Airtemp Div., Chrysler Corp., according to F. J. Laughna, Airtemp director of regional operations.

Prior to joining Airtemp recently, Prince was assistant merchandising manager for Servel, Inc.

## For air clean and fresh as Springtime



**a better ½-inch air filter for today's improved air-conditioning units**

Here it is... American Air's attractive, new **GREEN AMER-glas** filter, a true air-conditioning filter! It passes every rigid test for minimum air resistance and maximum dirt-catching power with flying colors!

MANUFACTURERS have gone to much trouble and expense to improve their air-conditioning units. Now AAF has called upon its many years of research and know-how to provide an improved, attractive filter developed especially

for today's air conditioners. Leading manufacturers have long depended upon AAF to help solve their problems. DISTRIBUTORS AND DEALERS are already stocking this new **GREEN** filter as a standard replaceable **AMER-glas** product, ½" thick only, in a complete range of sizes.

A FILTER FOR EVERY NEED. Whatever your requirements, American Air has **AMER-glas** filters in every size and shape ready for immediate delivery. Call us without obligation.

WRITE TODAY FOR FREE AMER-glas FILTER



**American Air Filter**  
COMPANY, INC.

Louisville 8, Kentucky



American Air Filter Co., Inc.  
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Please send me sample and complete information on new **GREEN** filter. We are a ☐ Manufacturer ☐ Distributor.

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**Deliver-Install-Service**  
**Air Conditioners**  
Without a Helper



910 W. Lyeoming • Phila. 40, Pa.



## Sunroc Introduces 'Cafeteria' Cooler Line

KEY NO. F-510

GLEN RIDDLE, Pa.—A new "Cafeteria" cooler, manufactured by Sunroc Corp., is now available in a wide range of capacities, from 6 g.p.h. to 42 g.p.h., "for smallest to largest requirements of restaurants, schools, institutions, commercial, and industrial cafeterias."

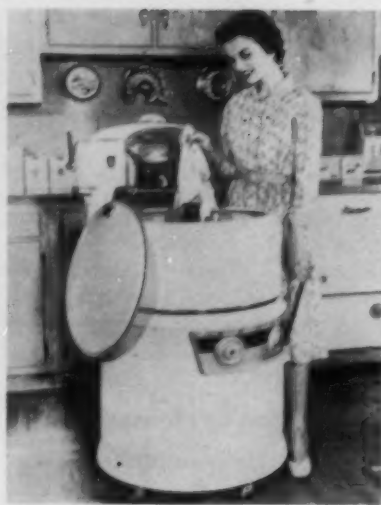
The compact cooler is convenient 36-in. counter height, 28 1/2 in. wide, and 21 1/2 in. deep.

Even the 42-g.p.h. model is restricted to these small dimensions,

it was pointed out. This is possible, the company said, because the Cafeteria incorporates a coil-cooling system as opposed to storage tanks.

The cooling unit is designed with seamless copper tubes "that instantaneously cool the water that flows through them. The copper tubes resist corrosion, and all water is fresh and clean."

The cooler is available for either wall or island location. The cabinet is supplied in either stainless steel or grey hammertone enamel finish. The stainless steel top and drain grille is equipped with glass fillers, bubblers, or a combination of each to meet individual requirements. Double-headed glass fillers are available for island locations.



## Norge Washer Has Power Rinse Action

KEY NO. F-512

CHICAGO—A conventional washer with power rinse action to cut clothes handling was introduced recently by Norge Div., Borg-Warner Corp., the manufacturer announced.

"Deep" power rinse provides a continuous current of aerated water through fabrics while vigorous agitator action unfolds and rinses each item and eliminates need for extra tubs, the firm stated.

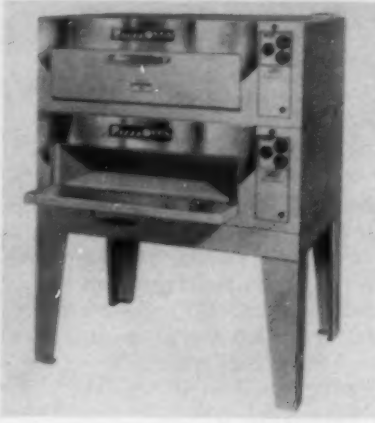
Ten lbs. of clothes can be cleaned in from 5 to 7 minutes, it was said. There are five widely spaced wheels on the unit for stability, timers give a wide selection of timed wash periods, and the wringer has fingertip control with rolls adjustable to exact pressure the type of clothing needs, the company further declared.

## Hotpoint Pizza-Baking Oven Holds 6 Pizzas

KEY NO. F-513

CHICAGO—A new pizza-baking oven, with a capacity of six 12-in. pizzas, claimed to cut baking time to 5 minutes per item was introduced here recently by Hotpoint Co., Commercial Equipment Dept., it was announced.

"Superheat" electric pizza oven has a temperature range of 300 to 600° F. which allows for other baked goods and most roasting operations, it was explained. Insulated on six sides, made of stainless steel, the unit can be stacked or banked with other Hotpoint oven sections for space-saving, it was added.



## Aircraft Refrigeration Equipment Developed

KEY NO. F-511

LOS ANGELES—Nordskog Co., Inc., Van Nuys, Calif., designer-manufacturer of custom galleys for aircraft, announces its newest engineering development—"Aero-Kool" refrigeration equipment for all types of commercial and military aircraft.

The new product, "already widely specified by leading national and internationally-known aircraft concerns," is, according to the firm's president, R. A. Nordskog, "a further step in company moves to custom-construct to the exact specifications of aircraft manufacturers complete galley and component equipment for any need in the feeding of crew and passengers."

Aero-Kool equipment, he states, is fabricated from complete styles, finishing materials, and dimensions

according to the selection of the purchaser.

The Aero-Kool units are self-contained.

"A typical refrigerator can attain a temperature drop from 90° ambient to 35° in approximately 40 minutes," it is claimed.

"Within one hour, 30 minutes, the unit can drop to 25°," Nordskog further stated.

The entire wall area of the box is refrigerated, "giving maximum heat transfer through a thermal conducting plastic."

"Emphasis has been placed on the weight factor, as well. A typical Aero-Kool refrigerator of 7 cu. ft., will weigh only about 135 lbs. Electrical load is 8 amperes, 28 volt circuit—or 110 (which is optional)," the statement concluded.

Announcing...

NEW Paragon water spray defroster at

55% SAVING

Now Only \$34.50

For Locker Plants • Unit Coolers • Walk-in Boxes • For Storage • Breweries • Dairies

NEW WS24 gives you

- ✓ ONE DIAL
- ✓ ONE MOTOR
- ✓ NEW COMPACT DESIGN

YES, Paragon engineering advancements score again for you—3 important ways! (1) You get tremendous savings—from \$78.00 to \$34.50. (2) Only one dial and one motor. (3) New compact size saves 4 1/2" in width over former model... makes WS24 easier to install. And, of course, you get Paragon's usual service warranty plus a nation-wide service organization. Order a stock of WS24's today from your jobber, or write Department 1687.

ONE CONVENIENT DIAL for setting frequency of defrost (1 to 24 cycles daily) as well as duration of cycle. Switch can be manually operated to check continuity of circuit. Heavy-gauge steel baked enamel case is 10 1/2" x 5 3/4" x 4 1/4". Knockouts, both sides, bottom and back.

TWO SIZES: WS24 (120-v-60 cycle) \$34.50  
WS24-3 (240-v-60 cycle) \$35.50

Bank on Paragon Time Controls for all types of Air-Conditioning and Refrigeration Service



COMMERCIAL DEFROSTER



DEHUMIDIFIER TIMER



7-DAY CALENDAR DIAL TIME SWITCH



FAN TIMERS

Let us send you data on all these dependable, accurate Paragon time switches—write

**PARAGON ELECTRIC COMPANY**  
1712 TWELFTH STREET • TWO RIVERS, WISCONSIN  
WORLD'S FOREMOST MANUFACTURER OF TIME CONTROLS

## 2 Zatex Colors Can Be Sprayed at Same Time

KEY NO. F-514

CLEVELAND—A new spray enamel which permits the application of two or more colors simultaneously from a single spray gun has been developed for the industrial products and commercial finishing fields, it was announced by A. D. Duncan, vice president of The Glidden Co. and general manager of the firm's paint division.

Called "Zatex," the new enamel is applied with standard spray equipment and spray techniques. It is available in a wide range of color combinations and, according to the manufacturer, the decorative finish offers excellent coverage over surface irregularities, a

high degree of mar resistance, and extreme washability.

The new multi-color coating adheres well to metal, wood, plywood, ceramics, stucco, plaster, wallboard, brick, and building block, it is said.

One gal. of Zatex, priced from \$3.75 to \$4, depending on the formula, has an estimated coverage of 100 to 125 sq. ft., it was noted.

"Zatex air dries to the touch in 30 minutes and is ready to handle in four hours," the company said. "In a baking operation, it will cure in approximately two hours at 140° F. or 20 minutes at 225° F."

## Trane Announces Convactor with Snap-On Panel

KEY NO. F-515

LA CROSSE, Wis.—A new "Type C" convactor with a snap-on front panel, new suspension element, and single piece rolled top and sides was announced recently by Trane Co. here.

Plaster or wood baseboard can be brought out flush with the front of the convactor without interfering with front panel removal due to the one piece rolled top

and sides, the firm said. A coin is claimed to be the only tool needed for quick panel removal. Front snaps into place by pushing its bottom against convactor enclosure and swinging up.

Damper chain comes through a slot in the enclosure, heater clips hold heating coil suspension, and the element can be pitched by raising one end of the unit, it was added.

## Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

## Products Advertised

(List name, page, and issue date)

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Company .....  
Street .....  
City ..... Zone ..... State .....  
Type of Business .....

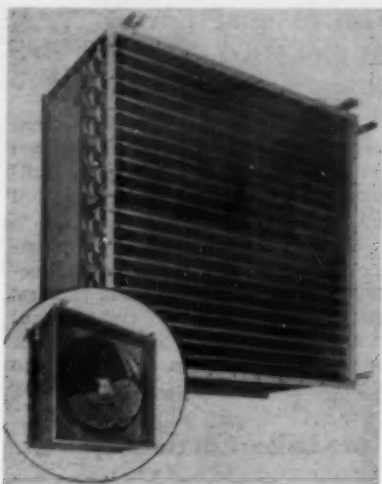
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Readers Service Dept.

450 W. FORT ST.

DETROIT 26, MICHIGAN





## Larkin Improves Line of Air-Cooled Condensers

—KEY NO. F-516—

ATLANTA—Larkin Coils, Inc. has made several design improvements in its line of "Zephyrcon" air-cooled condensers and has added a new 10-ton model to the line, it was announced by O. M. Sims, president.

The major design improvement was a reversal of the air flow. Air is now pulled instead of pushed through the unit.

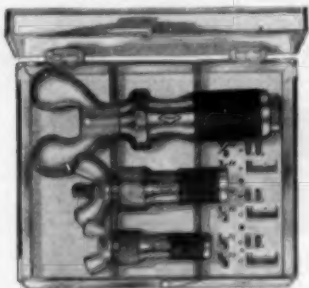
"This makes possible a better distribution of air, holds air-stream noise to a minimum, and makes removal of lint and leaves simple," it was stated.

"Other improvements include a motor and fan housing, eliminating the need for a hood on outdoor installations, a fan guard, which is standard equipment, and an external conduit box, which facilitates wiring."

The Larkin Zephyrcon comes in 2, 3, 5, 8, and 10-ton units, engineered for parallel use. They make use of the Larkin "Cross-fin" coil.

"Weatherproofed with corrosion-resistant, epon-base, chlorinated-rubber enamel, the Larkin Zephyrcon is made to withstand the elements. It operates efficiently either outdoors or indoors."

"Pre-punched holes for easy connection to ductwork make inside installation simple and effective. Slotted hanger bars also simplify installation either on the floor or from the ceiling."



## Imperial Announces 3-Test Plug Set

—KEY NO. F-517—

CHICAGO—A set of three test plugs, for use in temporarily shutting off 1/2, 3/4, and 1-in. O.D. tubing (1/2, 3/4, and 1-in. nominal sizes), has been announced by The Imperial Brass Mfg. Co. here.

The plugs are conveniently packaged in a plastic box with hinged lid. Sizes are clearly identified.

"The test plugs can be used anywhere that it is desirable to shut-off the end of a tube temporarily without pinching it off or installing a valve," the company explained. "Fields in which they are widely used include plumbing, heating, instrumentation, refrigeration, and LP-Gas work."

"Plug is inserted in end of tube and wing nut is tightened. This expands the synthetic rubber portion of the plug and seals the tube. The test plugs will hold pressures up to 100 lbs."

The new test plug set is identified as No. 142-F.



## Packless Metal Hose Absorbs Movement

—KEY NO. F-518—

NEW ROCHELLE, N. Y.—Packless Metal Hose, Inc., manufacturer of seamless drawn flexible metal hose, offers a free engineering service designed to assist those with other than normal vibration difficulties.

Regardless of the problem, engineers will, as part of the service, make their recommendations for vibration absorbers engineered for customer's specific needs, the company said.

Made of spirally corrugated seamless drawn tubing with new, patented reusable couplings machined out of high quality brass, Packless hose "will completely absorb all movement with no 'whip' transmission," the manufacturer claims.

## Pressure Reducing Valve Offered

—KEY NO. F-519—

WALDEN, N. Y.—A new direct-operated water pressure reducing valve has been introduced by

Spence Engineering Co., Inc., here. Called the D25, the new valve can regulate water flow to such fast-acting equipment as flushometers and snap cocks, the company said.

It incorporates a high pressure molded diaphragm and heavy spring chamber construction for operation in the reduced pressure range between 30 p.s.i. and 80 p.s.i., the announcement stated, adding:

"It is especially designed for dead-end water service where flow is intermittent and subject to abrupt fluctuations."

Design features include "an essentially balanced single seat to

minimize variations in delivery pressure resulting from varying inlet pressure; large paraflex diaphragm for sensitive response; packless construction; and composition single seat providing for dead-end shutoff and preventing pressure-creep when no flow is required."

The valve is recommended for industrial processing operations; municipal or plant water mains; apartment houses, hotels, office buildings, and hospitals to provide each floor with steady operating pressure.



## Griddle-Top Range Cooks 1,000 'Burgers an Hour

—KEY NO. F-5110—

CHICAGO—A 36 by 24-in. one-piece "Rocket" griddle-top cooking surface with rated capacity of over 1,000 hamburgers an hour is the feature of Hotpoint Co.'s electric "Supergrid" heavy-duty range.

A variety of foods can be cooked at separate, correct tem-

peratures at the same time due to four individually-controlled thermostats, each with its own signal light, the firm stated. Range top temperature can be set from 200° to 450° in each of the four areas.

Heat comes to the 1/2-in. thick surface from a "14-Fold" calrod unit pressure-clamped to the underside. The automatic electricity-saver turns off current the moment desired cooking temperature is reached, turns it on again when needed, according to the company.

Advanced engineering  
helps you sell

# THE AMAZING 2-IN-1

## Crystal Tips or Chips

### AUTOMATIC ICE MAKER

... Does Double Duty and Does It Better!

Every user of ice is quick to see that the amazing Crystal Tips or Chips Ice Maker does the job of two for the price of one—Tips in "cube" size, or with the turn of a knob, Chips in crushed size. At a cost of only a few cents a bushel! It's the ice maker with all the most wanted features: Uniformly-sized ice, quiet operation, full 24-hour storage bin capacity, space-saving design, and a simplified trouble-free mechanism. Write for information.

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### Dunham Bulletin Describes Baseboard

—KEY NO. R-510—  
CHICAGO—A new 16-page, two-color bulletin has been published by C. A. Dunham Co., manufacturer of heating and cooling equipment.  
Booklet 1231 contains photographs, drawings, and technical data on the firm's residential building baseboard. Roughing-in data, design, and details of typical installations, capacities, and procedures for selecting baseboard systems are included.

### Kramer Manual Covers 'L' Thermobank Uses

—KEY NO. R-511—  
TRENTON, N. J.—Kramer Trenton Co. here has announced the publication of a 16-page manual covering operation, application, and specifications of the new Kramer "L" Thermobank.  
The company said the "L" Thermobank, a "marked improvement" of the original Kramer Thermo-

bank, is a fast, completely automatic hot gas defrost system for low temperature refrigeration installations.

The new manual (No. TV-320) has complete engineering data for temperature applications from 32° F. to -75° F., with ratings at various levels. In addition, there are rapid selection tables covering the range of box sizes, various temperature levels, under a range of loading conditions.

"With this data, it is possible to figure a complete job including selection of high and low side equipment without picking up a pencil," it was stated.

A complete description of the "L" Thermobank operation is given in detail as well as information for winter operation.

Production of the "L" Thermobank marks more than a decade since the original Thermobank was developed by Kramer engineers.

"The new 'L' Thermobank system utilizes both sensible heat plus latent heat by freezing a tube of ice around its re-evaporator coil during defrost," it was said.

### Warren Illustrates Merchandisers, Freezers

—KEY NO. R-512—  
ATLANTA—Warren Co., Inc. here recently issued a colored, illustrated folder describing its island merchandisers, storage freezer, and frozen food and meat merchandisers.

Explaining what each unit is said to do, the illustrations show the equipment as it might be seen in a market.

### Dean 'ThermoPanel Coils' Technical Data Explained

—KEY NO. R-513—  
BROOKLYN—First technical data book, bulletin 355, on "Thermo-Panel Coils" was recently published by the manufacturer, Dean Products, Inc. here.

Subjects included in the 52-page manual are operating pressures, industrial heating, heat transfer coefficient, choosing Thermo-Panel Coils, pipe coil comparison method, determination of delta T, wall and surface losses,

and many other things.

Photographs of uses of the 34 listed typical applications are also included.

### Essex Wire Issues 4-Section Computer

—KEY NO. R-514—  
DEKALB, Ill.—A four-section plastic-bound circular computer developed by Cords Ltd. Div., Essex Wire Corp. here shows engineering and design of cord sets.

Visualization of actual cord samples is made possible by rotating the illustrated disks of the "Cordinator" chart. Graphic tables, capacity, and gauge charts show proper selection of wire, the firm said. A composite chart indicates various standard components and connectors adaptable to cords selected.

### Worthington Offers Tips, Costs on Ice Rinks

—KEY NO. R-515—  
HARRISON, N. J.—A new bulletin containing construction tips and operating costs of permanent and portable ice rinks has been issued by Worthington Corp.

As illustrated in the bulletin (#C-1100-B85P), installations of Worthington equipment include hockey rinks, curling rinks, figure skating rinks, municipal rinks, and commercial rinks. Notable among the Worthington installations are the Rockefeller Center skating rink, the University of Illinois rink, and the Harvard university rink.

The bulletin outlines how type, design, size, and location of desired rink influence choice of equipment and location of machinery room. It contains information concerning lighting of rinks and tips on how to keep ice in good condition. A full page is devoted to estimated average cost of the three basic types of rinks—permanent concrete deck, fixed-iron-pipe grid, and "take-up" or portable type.

### Frick Illustrates Unit Air Conditioners

—KEY NO. R-516—  
WAYNESBORO, Pa.—An eight-page multi-colored bulletin illustrating unit air conditioners of Frick Co. was published recently.

### G-E Manual Covers Motor Starters

—KEY NO. R-517—  
SCHENECTADY, N. Y.—General Electric Co. has announced availability of an eight-page bulletin (GEA-6358) on manual motor starters.

The bulletin gives new application information on General Electric CR 1061 and CR 1062 manual starters for fractional and integral horsepower motors to 7½ hp. The publication includes enclosure and dimension data.

### Nor-Lake Catalog Lists Reach-In Units

—KEY NO. R-518—  
HUDSON, Wis.—Twelve models of Nor-Lake reach-in refrigerators, including the new "window-door" models, are listed in a catalog sheet (Form RI-19) recently issued by Nor-Lake, Inc. here.

Special features of the refrigerators are pictured and described, including the glass-front door, forced air unit, and ice cuber, while other advantages are shown in cutaway diagrams. Complete product specifications are given.

### Redmond Covers Uses, Capacity of Small Units

—KEY NO. R-519—  
OWOSSO, Mich.—A newly-published Redmond "Standard Line" MicroMotors catalog, announced by Redmond Distributors, Inc. here, lists the uses and performances of the complete line of Redmond fractional horsepower electric MicroMotors, blowers, and fan blades, plus full information on Redmond replacement kits and accessories.

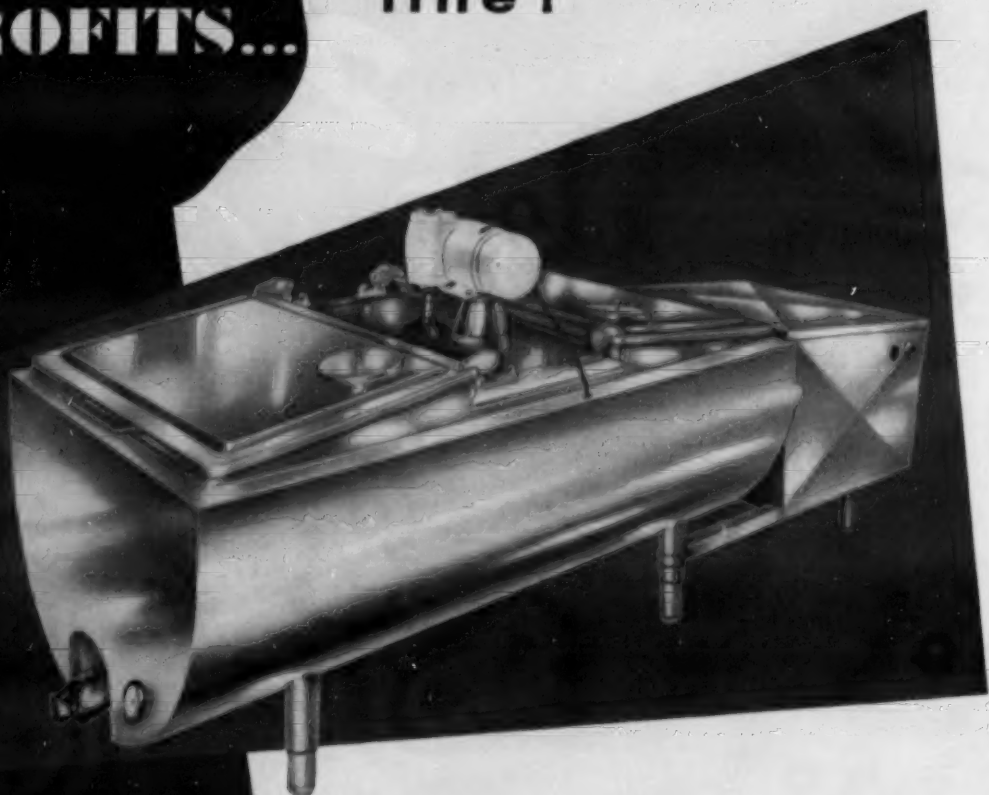
Included in the catalog are pictures and data on types L and BL MicroMotors for low-powered applications; the heavy-duty W motors; and the extra heavy-duty AY-BY motors.

### Blazer Publishes Estimating Catalog

—KEY NO. R-5110—  
PASSAIC, N. J.—An illustrated estimating catalog covering air conditioning, refrigeration, heating, and ventilation supplies and equipment manufactured by M. Blazer & Son was issued here.

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GREATER  
PROFITS...

new  
SOLAR MILK MINDER  
line!



SOLAR is currently looking for aggressive dealers to handle its completely new and redesigned MILK MINDER line.

#### SOLAR would like...

- ...dealers who can service refrigeration equipment or who have access to a refrigeration service outlet.
- ...dealers who have experience selling dairy farmers.
- ...dealers who want a high quality line and greater profits.

#### SOLAR offers you...

- ...a well known company, that has been serving dairy farmers and processors for nearly a century with top quality, highly respected products.
- ...the finest bulk milk tank on the market—a tank that has incorporated in it, every feature dairy farmers want for fast, economical cooling—work saving, time reducing methods that ease your selling job.
- ...a hard hitting advertising program to dairy farmers and processors, plus a dealer aid program that can turn prospects into buyers.

Interested in increasing your profits? If so drop us a line. Tell us something about yourself—place of business, other lines handled, territory covered, number of salesmen and anything you feel will give us a clear picture of your operation.

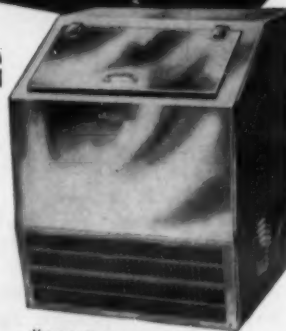
**SOLAR PERMANENT CO.**  
TOMAHAWK, WISCONSIN  
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TODAY...  
THE LA CROSSE

SENIOR  
**KUBE  
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#864 Sr.



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Top La Crosse quality in design, economical operation and big Kube capacity! SAVE... from purchase price through years and years of convenient service with the Senior Kube King.

- Approx. 3200 crystal clean Kubes (no holes) per 24 hours.
- 110 lbs. storage
- 6 qts. water per freezing cycle
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- No pumps
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EXPORT OFFICE: 80 BROAD ST., NEW YORK, CABLE: EXIMPORT



## System Cools Stored Trees, Warms Workers

### Van Well Nursery 'Heat Pump' Chiefly For Winter, Fall Use

WENATCHEE, Wash. — Refrigeration performs double duty for the Van Well Nursery here. Heat extracted from a fruit tree storage room by a 5-hp. system is ducted into a workroom to supplement electric heaters providing comfortable working conditions for employees.

This "heat pump" system was devised by Art de Desrochers, local contractor, and is intended for fall and winter use primarily.

Basic purpose of the installation is to maintain a 35° F. temperature and high humidity in the fruit tree storage room. This is a 48 by 64 by 10-ft. room with concrete block insulated walls but an uninsulated natural earth floor.

#### EQUIPMENT DESCRIBED

Refrigeration system consists of a 5-hp. Tecumseh Model R compressor connected to a built-up air-cooled condenser. Latter was devised by using six individual ¾-hp. condensers laid horizontally and fed with a field-fabricated distributor similar to those used on expansion valves to feed multi-circuit coils, Desrochers explains.

Condenser assembly is mounted directly above the compressor and motor, which are mounted on a poured concrete base.

"I estimate that this compressor kicks about 55,000 B.t.u. per hour into the backroom when refrigeration is on," Desrochers says. "As the customer is using electric heaters to warm that room, any gratis heat is so much eggs in the beer."

Compressor and condenser are located in a small room which serves as a plenum. By means of ductwork, a blower, and manually controlled dampers, return air can be brought from the workroom, sent through the air-cooled condenser and thus heated, and then supplied to the workroom. In passing through the condenser, of course, the recirculated workroom air cools and condenses the refrigerant.

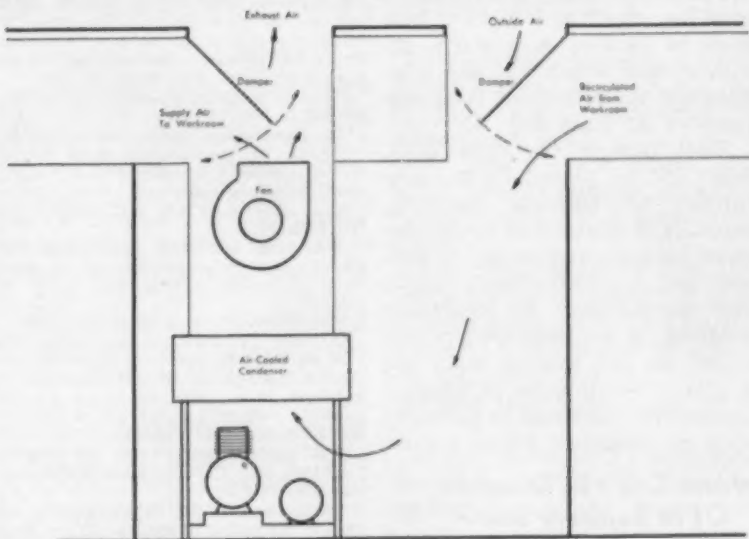
#### WARM WEATHER USE

During warm weather when no heating is needed in the workroom, the two dampers close off the duct connections to the workroom and at the same time open outside air connections. Outside air is then pulled through the condenser and exhausted outdoors.

By other settings of the dampers, however, which are manually controlled through a sash cord and pulley arrangement, outside air can be pulled across the condenser and then supplied to the workroom, or air from the workroom can be pulled through the condenser and then exhausted outdoors.

#### UsAireo Names Smith

MINNEAPOLIS—J. V. Smith Heating & Sheet Metal Co., Springfield, Mo., has been named a distributor by United States Air Conditioning Corp.



WORKROOM of Wenatchee, Wash. nursery gets supplementary heat from 5-hp. refrigeration system used to cool fruit tree storage thanks to ingenious arrangement of dampers devised by contractor Art de Desrochers.

### Dean 'Thermo-Panel' Names 5 Sales Firms

BROOKLYN—Dean Products, Inc., Thermo-Panel Div., recently named five firms as sales representatives for the "Thermo-Panel Coil."

Cameron Engineering Co., San Francisco, was appointed to cover the northern half of California and Washoe County, Nev. E. C. Paul Edwards represents the firm.

Allan Edwards, Inc., Tulsa, Okla., was named representative for Oklahoma, Arkansas, and Texas panhandle. Salesmen include A. J. Edwards, Jack S. Osborn, Bruce B. Pettigrove, Bill W. Jones, C. E. Shilling, Joseph C. E. Schumacher, and Dan B. Mathey.

Operating through the central section of Pennsylvania will be Thermal Specialties Co. of

Harrisburg. B. Zaritsky and Seth B. Wood will travel for the company.

Merlo Steam Equipment, Detroit, with Anthony A. Merlo, Raymond R. Paschke, and Joseph S. Florek, will cover eastern Michigan.

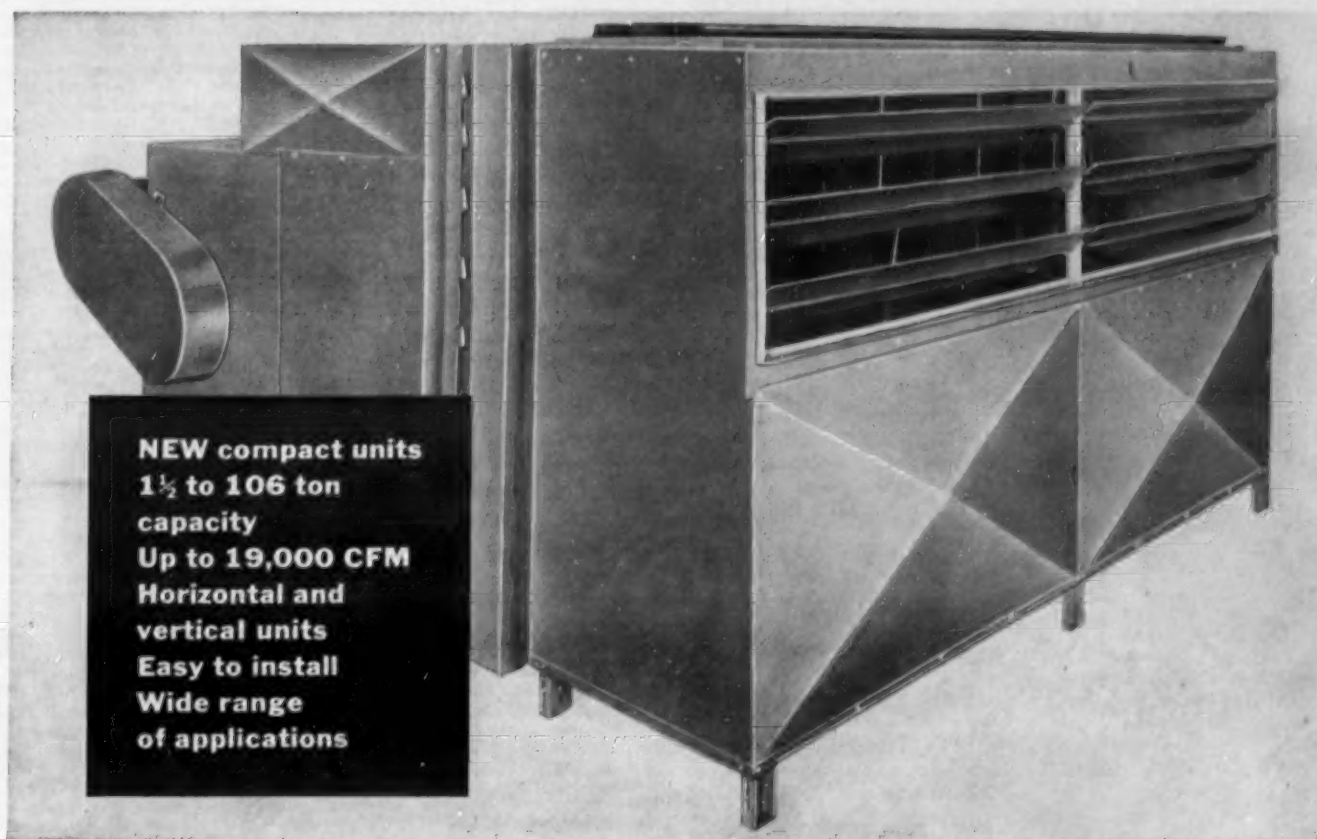
J. F. Munn of the J. F. Munn Co., Pittsburgh, was named representative for nearly all West Virginia, western Pennsylvania, and the western tip of Maryland.

### Hotel Orders 100 Low-Amp. Window Air Conditioners

NEW YORK CITY — The Savoy Plaza hotel here has ordered 100 ¾-hp. Gibson low amp room air conditioners from Munson, Sigafos, Blonchek & Associates, according to H. M. Sigafos, partner.

Contract was awarded through the firm's local office. Its headquarters is in Cleveland.

## The most ADAPTABLE AIR CONDITIONER ever offered



**NEW compact units  
1½ to 106 ton  
capacity  
Up to 19,000 CFM  
Horizontal and  
vertical units  
Easy to install  
Wide range  
of applications**

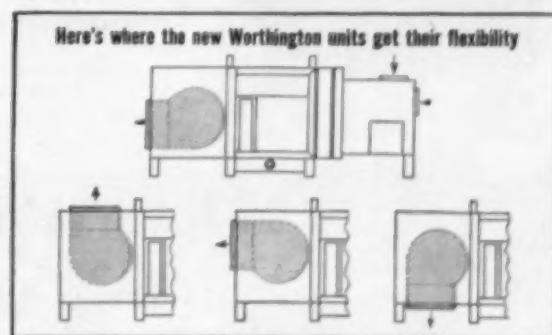
Horizontal construction permits suspension of unit from platform or ceiling. Shown here is large-sized unit with damper section.

### New Worthington units cut installation time and expense

Extreme FLEXIBILITY of the new line of Worthington air conditioners permits you to install them anywhere . . . cutting your installation time and expense, and saving valuable space for your customers.

Designed to work with a central refrigeration system these new units fit your exact requirements—from large plants and offices to small stores and shops.

The fan section may be mounted with front, top or rear discharge—as shown in the diagram below. The motor can be mounted on the top, front, back or at either end.



Here's where the new Worthington units get their flexibility

Here's maximum adaptability in every installation!

Standard unit consists of base section, fan section and coil section—all constructed of rugged, fabricated steel that is Bonderized and coated with a corrosion resistant enamel. For more facts on this new line write Worthington Air Conditioning, Sec. A6105, Harrison, N. J.

A-6-105

- exclusive 3½" motor base adjustment for true belt tension
- up to 81 coil combinations
- quiet, dynamically balanced fans
- accessories interchangeable between horizontal and vertical units
- accessibility—easily removed fan section and panels simplify inspection

## WORTHINGTON



CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME



## Proposed Kalamazoo Model Code--

(Continued from Page 1)

tion and air conditioning are only now coming under close scrutiny, Madaus invites suggestions and comments from anyone interested. Copies of the code were submitted last fall to local contractors, national associations in the industry, architects, engineers, and city officials for their comments.

More than 500 suggestions were received and most of them are being incorporated.

### Code Covers Truck Refrigeration, Ignores Auto Air Conditioning

Madaus pointed out that while the code includes a few sections on truck refrigeration, it ignores automobile air conditioning. He said he saw no need to cover auto air conditioning at this time.

One of the interesting provisions for truck refrigeration is that the truck must be stored outdoors except while being serviced.

The code requires that all air conditioning equipment be rated in B.t.u.h. based on the temperature of cooling media used to change the high-side gas to a liquid.

### Window Units Must Be Connected to Own Meter Line

It requires that window air conditioning units be installed in strict accordance with manufacturers' requirements. It also requires that they be connected to a separate line to the meter, and that any air conditioner employing more than 1/2-hp. motors shall be wired to 220-volt circuits.

On combination heating and

cooling equipment, the code specifies that cooled air shall not be passed through the heating chamber of a heating unit. It specifies that no cooling coil shall be located in a warm air supply duct which has not been designed to withstand temperatures of at least 250° F.

Heat pumps, the code says, shall not be placed in an area subject to freezing temperatures. It requires that the equipment be installed so as to provide ample area for maintenance and accessibility to operating controls. It requires that piping of an air coil system shall use a glycol solution or equivalent anti-freeze and shall be provided with an auxiliary water source.

### Water Can't Be Disposed Of In Sanitary Sewer

For water-cooled equipment, the code says water shall be disposed of in accordance with the type of system employed but in no case into the sanitary sewer and by special permission only into the storm sewer.

Where electric heating is used, the code specifies that outdoor air shall be supplied at the rate of 4 c.f.m. per person where the volume of the structure is not less than 1,000 cu. ft. of air per person.

It says that ventilation duct size for residential homes shall be determined by use of the following formula:  $D = P \times 3.12$  where D is duct size in square inches and P is the number of persons.

Madaus said that this formula may cause some comment in the industry but it has been checked thoroughly and works out very well.

Madaus re-emphasized that all these provisions are merely suggestions and that additional comments are welcome.

Some of the specific new provisions in the model code are as follows:

### Partial Text Of Proposed Code

#### SECTION 48.0.0. ELECTRIC HEATING.

##### 48.2.1 CLEARANCES TO COMBUSTIBLE MATERIALS.

No equipment shall be placed against combustible materials whose surfaces may produce heat in excess of 125° F. Where such surfaces may produce heat in excess of 125° F. an air space and insulation shall be provided in accordance with the inspector's approval.

##### 48.2.2 CLEARANCES TO DRAPES,

##### CURTAINS, ETC.

No drape, curtain, or similar type materials shall be closer than one foot to the heating surface in any direction.

##### 48.2.3 LOCATION OF EQUIPMENT.

Equipment shall be located to avoid damage to the equipment or injury to occupants and shall have a minimum clearance to any obstructions of not less than three feet from its face.

##### 48.2.5 ELECTRICAL-RELAY OPERATION.

No automobile relay device to cut off some of the heaters shall be installed unless a by-pass switch is provided in the circuit.

##### 48.2.6 INSULATION OF AREAS TO BE HEATED.

Any area involving more than two rooms or more than 400 sq. ft. shall have all walls, ceiling, and floors insulated.

##### SECTION 48.4.0 VENTILATION.

Outdoor air shall be supplied at the rate of 4 cu. ft. per person per minute where the volume of the structure is not less than 1,000 cu. ft. of air per person. For structures of lesser volumes consult the inspector.

##### 48.4.1 DETERMINATION OF VENTILATION DUCT SIZE FOR RESIDENTIAL HOMES.

Duct size shall be determined by use of the following formula:  $D = P \times 3.12$  Where D = Duct size in square inches, P = Number of Persons.

##### SECTION 49.0.0 AIR CONDITIONING SYSTEMS.

##### 49.1.1 DESIGN CONDITIONS, DOMESTIC INSTALLATIONS.

Domestic air conditioning design conditions shall conform to Manual No. 11 of the National Warm Air Heating and Air Conditioning Association, Issue of 1955 and IER Manual 1955 Edition. The term Domestic Air Conditioning shall mean the installation of air conditioning equipment in one or two family private dwellings and used for living purposes only.

##### 49.1.3 AIR CONDITIONING SYSTEMS PROHIBITED.

No air conditioning equipment shall be installed in places of hazardous occupations or where inflammable gases may be used unless explosion proof equipment is employed. Doctor's and dentist's offices may be considered under this requirement.

##### 49.1.3 RATING OF AIR CONDITIONING EQUIPMENT.

All air conditioning equipment shall be rated in B.t.u.h. based on the temperature of cooling media used to change the high-side gas to a liquid.

##### 49.1.8.1 LOCATION OF MAIN ELECTRICAL DISCONNECT SWITCH.

A main electrical disconnect switch shall be located near the unit and outside of the unit. When the machinery is located in a machine room or in a room not readily accessible a separate main disconnect switch shall be located just outside of this room.

##### 49.1.8.2 LABELING OF DISCONNECT SWITCHES.

All main and emergency disconnect switches shall be properly labeled to indicate the equipment it serves.

##### 49.2.1 INSTALLATION WINDOW AIR CONDITIONERS.

Window air conditioning units shall be installed in strict accordance with manufacturer's requirements. Where such requirements cannot be followed, proposed changes to the requirements shall be submitted to the inspector before any installation is made.

##### 49.2.1.2 EXTENSION OF WINDOW UNITS BEYOND FACE OF WALL.

No window unit shall be installed in windows which permit an overhang of the unit of more than 12 in. beyond the face of the wall when such wall adjoins public thoroughfares.

##### 49.2.1.3 ELECTRICAL CONNECTION.

All window air conditioners shall be connected to a separate line to the meter.

##### 49.2.1.4 ELECTRICAL DISCONNECT.

All window air conditioners shall be supplied with a means of disconnecting the current at or near the equipment.

##### 49.2.1.5 ELECTRICAL SUPPLY REQUIREMENTS.

Any air conditioner employing over 1/2 hp. motors shall be wired to 220-volt circuits.

##### SECTION 49.2.0 COMBINATION HEATING AND COOLING EQUIPMENT.

Combination cooling and heating systems shall meet the same requirements of their respective codes.

##### 49.2.2.1 DUCT DESIGN.

Duct design and installation shall be provided on the basis of whichever system requires the larger size ducts or greater number of ducts.

##### 49.2.2.2 DUCT INSULATION AND CLEARANCES.

Insulation and clearances to ducts shall be provided on the basis of whichever systems is the most severe.

##### 49.2.2.3 COOLED AIR TRAVEL.

Cooled air shall not be passed through the heating chamber of a heating unit.

##### 49.2.2.4 COOLING COIL LOCATED IN WARM AIR SUPPLY DUCT.

No cooling coil shall be located in the warm air supply duct which has not been designed to withstand temperatures of at least 250° F.

##### 49.2.2.5 COOLING COILS LOCATED OVER HEATING CHAMBER.

Cooling coils located over heating chamber of a warm air furnace shall be provided with positive means for preventing moisture drip on the heating chamber.

##### 49.2.2.6 WINTER-SUMMER CHANGE-OVER DEVICE.

Simple and positive means, manual or automatic, shall be provided for customer to change from winter heating to summer cooling.

##### 49.2.2.7 REGISTERS OF COMBINATION INSTALLATIONS.

All registers for combination units shall be of the diffusion type.

##### 49.2.2.8 BY-PASS DAMPERS FOR WINTER-SUMMER CHANGE-OVER.

Any by-pass dampers shall be so arranged that they will not alter the effectiveness of any limiting control.

##### 49.2.2.9 LOCATION OF EVAPORATOR EXPANSION VALVE.

No evaporator expansion valve shall be located inside a warm air supply duct.

##### SECTION 49.2.3.0 HEAT PUMPS.

##### 49.2.3.1 RATING OF EQUIPMENT.

All heat pump equipment shall be B.t.u.h. rated.

##### SECTION 49.2.4.0 INSTALLATION.

##### 49.2.4.1 FOUNDATION.

The equipment shall be placed on a level and firm foundation of masonry with substructure capable of carrying the load without carrying vibration characteristics to the surrounding structure.

##### 49.2.4.2 ACCESSIBILITY.

The equipment shall be so installed as to provide ample area for maintenance and accessibility to operating controls.

##### 49.2.4.3 VENTILATION.

Fresh air shall be provided to the equipment room for proper operation and for venting gases in case of leaks.

##### SECTION 49.2.5.0 PIPING.

All piping shall conform to the requirements of section 40.0.0 Low Pressure Boilers.

##### 49.2.5.1 PIPE INSULATION.

All piping in the ground shall be insulated with a moistureproof insulation where ground temperature is lower than the heat source.

##### 49.2.5.2 TESTING OF WATER PIPING.

(Concluded on next page)

## heat-x HEAVY DUTY UNITS

...Equipment you can Rely on



**'IC' CONDENSERS**  
Copper Inner-Fins in refrigerant passages. All water passages of non-ferrous construction. 5 to 150 Tons.

**'CH' WATER CHILLERS**  
Copper Inner-Fins in refrigerant passages. Water passages of non-ferrous construction. Single pass. 2 to 90 Tons.

**'RX' HEAT INTERCHANGERS**  
Inner-Fin construction. No oil trapping problem. Low Freon charge required. 7 1/2 to 100 Tons.

**'HX-ETI' LIQUID COOLERS**  
Combinations of cast aluminum coolers simply constructed with separate liquid and refrigerant coils cast in aluminum blocks.

**'PCL' CHILLER ASSEMBLIES**  
For those who prefer to tie in their own condensing unit and water pump. Construction the same as 'PC' line. 10 to 90 Tons.

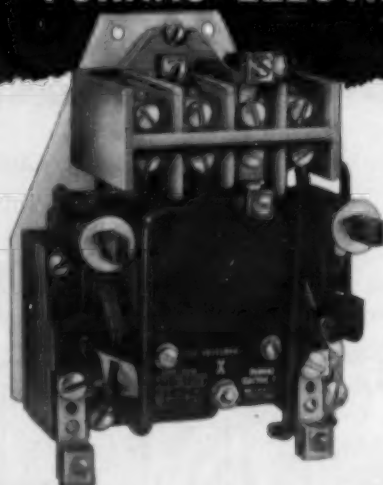
**'PC' WATER CHILLERS**  
Inner-Fin construction of refrigerant passages means greater cooling capacity, for less bulk. Completely "packaged" units: wired, ready to install. 2 H.P. through 100 H.P. Capacity control, available on 2 H.P. through 15 H.P. models for use with hermetic and semi-hermetic units, eliminates short-cycling during light load conditions and maintains constant suction pressure.

**'CCP' PACKAGE CHILLERS**  
Combinations of cast aluminum coolers. Complete, ready to install. No danger of freeze-up damage. Hermetic or open compressors available. 1/2 H.P. through 10 H.P.

Advanced engineering design, copper construction of all water passages, quality materials and careful workmanship throughout assure the solid reliability of all these heavy duty Heat-X products.

Write for descriptive catalogs on these or other Heat-X units.

## FURNAS ELECTRIC CONTROLS do the best job for AIR CONDITIONING and REFRIGERATION



### MAGNETIC CONTROLS FOR HERMETIC UNITS

As original and replacement controls for air conditioning and refrigeration units, these compact magnetic controls are available in ratings of 20, 30, 35 and 50 amperes sizes and are listed as standard by Underwriters' Laboratories. Also available is a complete line of magnetic control for open type compressor units for applications through 200 hp.

Write today for Air Conditioning Bulletin 5410,  
1111 McKee Street, Batavia, Illinois.



**FURNAS ELECTRIC COMPANY**  
BATAVIA, ILLINOIS

SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

**HEAT-X, Inc.**  
BREWSTER • NEW YORK



## Kalamazoo Code- Multiple-Thermostat Systems Growing In Popularity, Says M-H Report

(Concluded from preceding page)

All water piping shall be tested at a minimum of 200 p.s.i. for four hours.

49.25.4 GROUND COIL SYSTEM.  
Piping of a ground coil system shall be below the freezing line and shall employ the use of the glycol solution or equivalent anti-freeze.

49.25.5 DIRECT HEAT TRANSFER SYSTEMS.

All direct heat transfer systems located in ground shall be installed not less than 5 ft. from ground level.

49.25.6 AIR COIL SYSTEM.

Piping of an air coil system shall employ the use of a glycol solution or equivalent anti-freeze and shall be provided with an auxiliary water source.

49.25.8 WELL TYPE WATER DISPOSITION.

When water is returned to a well, the dump well shall be located downstream from the supply well or at a different level than the supply well.

49.25.9 STREAM TYPE SYSTEM.

When a stream, river, or creek is employed as a heat or cooling source, such water shall not be circulated through the system when such source is polluted. An indirect system must be used.

49.25.10 RADIANT TYPE INDIRECT SYSTEMS.

All systems of this type shall employ the use of an anti-freeze solution.

SECTION 49.27.0 DISPOSITION OF WATER.

Water shall be disposed of in accordance with the type system employed but in no case into the sanitary sewer and by special permission only into the storm sewer.

49.28.1 DISCONNECT SWITCH.

A main disconnect switch shall be provided and located in an accessible position within 5 ft. of the operating equipment and properly labeled.

49.28.2 CIRCULATING PUMP CONTROL. A control shall be provided which will energize circulating pump before the compressor starts.

49.28.3 MOTOR STARTERS.

Motor starters shall be provided for compressor and circulating pumps.

49.28.4 CONTROLS CIRCUITS.

All control circuits shall be 115 volts or less.

49.28.5 COMPRESSOR CIRCUITS.

Compressor circuit shall be 220-440 volts.

MINNEAPOLIS — The one-thermostat home is being frozen out of the American housing picture — an insistence upon greater personal comfort is accelerating the trend in U. S. homes toward multiple-thermostat systems to more sensitively adjust indoor temperatures to outdoor weather.

So states a summary of 1955 operations of Minneapolis-Honeywell Regulator Co.

In a report to stockholders on last year's activities—which resulted in record-breaking sales of \$244,482,068—officials of the company said the home buyers' continued preference for the ranch-type house and the new interest in split-level design had stimulated installations of

zoned heating systems. A zoned system is one that makes use of individual thermostats to control temperatures in two or more areas of the house. Generally, there are the sleeping, working, and living areas of a house.

They also reported that this firm's system of electronic thermostats placed both outside and inside the house and linked to an electronic control "brain," had become increasingly popular.

With respect to the expanding use of central air conditioning equipment in the home, the company reported it was working to develop standardization of controls for this type of system.

## Housing Project Offers Complete Home Air Conditioning for \$1,500

WANTAGH, L. I., N. Y.—Samuel Walton, builder, has announced the opening of Orchard Park at Wantagh where 120 homes are now being constructed in a location directly overlooking Southern State Parkway here.

A display model, offered at \$18,500, has been opened on Seaman's Neck Rd. The same house completely air conditioned

is available under \$20,000, it was stated.

Designed by Herman H. York, architect, the split level home has an exterior of brick, wood shingles, and asbestos with asphalt shingle roof. It features seven rooms, one and one-half baths, garage, full basement, and patio, and occupies a landscaped plot of 6,000 sq. ft.

The home has oil-fired Air-temp heat. Since the air ducts can readily be used to circulate cooled and dehumidified air through all rooms, the home may be turned into an air conditioned residence at any time, it was noted.

If the home buyer decides to have the house completely air conditioned at the time of initial purchase, monthly payments are increased by only \$7, according to the announcement.

### Utility Appliance Names Skaft Engineering Head

LOS ANGELES—Utility Appliance Corp. announces the promotion of Stanley F. Skaft to the newly-created position of director of engineering for all the company's products.

Skaft, a director of the company, was formerly director of sales for the heating and air conditioning division.

At the same time Ben B. Breslow, president of Utility, announced the following promotions: Charles F. Cushing, from merchandising manager to director of sales, heating and air conditioning division; Richard J. Petersen, from chief engineer to manager of research and chief engineer, Utility divisions; Clifford D. Mohr, from senior engineer to chief engineer, range division.

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## Residential Air Conditioning



THIS TWIN Iron Fireman Co. system of heating and air conditioning, which combines independently operated "SelectTemp" heating system with "In-the-Wall" coolers, each with separate room thermostats, is the company's approach to providing occupants in individual rooms control of their own indoor climate and comfort, winter or summer.

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Featuring these star attractions:

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- precision engineering (in compliance with U.L. standards)
- ultra performance (guaranteed at A.S.R.E. and A.R.I. standards)
- Simplified "A-B-C" installation and servicing
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AIR-COOLED  
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Series

Available in 2, 3  
and 5 ton capacities

WATER-COOLED  
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Available in 2-3-4-6  
ton capacities



PLUS these additional attractions:

- Shana "Duo" Units! • Combination Units!
- Commercial Units! • Winter Air Conditioners!

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Please send me additional information about SHANA-AIR air conditioning.

- ☐ Exclusive franchises still available.
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Name of Firm \_\_\_\_\_

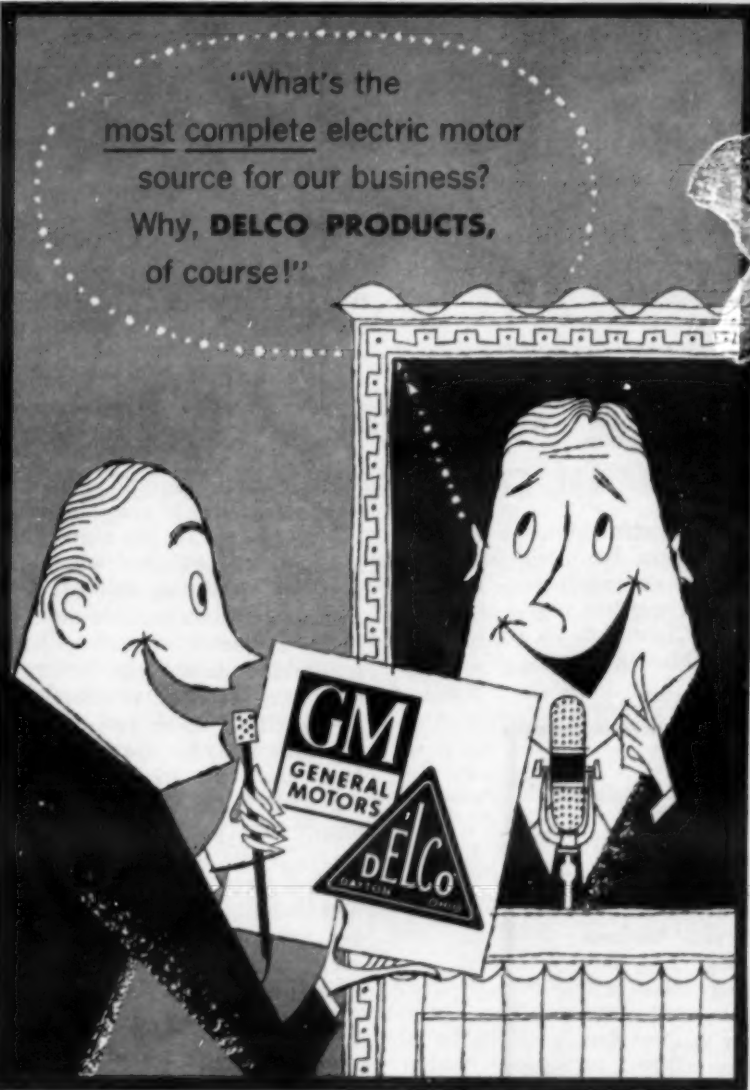
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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Phone Number \_\_\_\_\_

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"What's the most complete electric motor source for our business? Why, DELCO PRODUCTS, of course!"



Delco Products makes more models and types of electric motors for the air-conditioning industry than any other manufacturer. For quick service call your nearby Delco Electric Motor distributor.

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DELCO PRODUCTS, DIVISION OF GENERAL MOTORS, DAYTON, OHIO  
*Proved best by Performance!*



## Contractor Finds Profit In Variety of Operations Including Wholesale Unit Rebuilding



FUNCTIONS of controls and wiring of typical residential air conditioning system can be demonstrated for dealers and servicemen with this panel devised by Edgar Weaver, manager of service department for Matthews Engineering Co., Dallas.



EARLY step in rebuilding Airtemp compressors is to run parts through series of cleaning baths. Note overhead rail and electric hoist.

By C. Dale Mericle

DALLAS—Typifying the wide variety of activities which seem to mark the present-day air conditioning and commercial refrigeration contracting firm, Matthews Engineering Co. management here not only is involved in the usual type of contracting but must concern itself with problems of wholesale distributing and wholesale compressor rebuilding.

The latter wholesale activities are handled by Royalair Distributors, a wholly owned subsidiary which distributes Airtemp residential and commercial air conditioning and performs in-warranty compressor and room air conditioner repairs for Airtemp for a large zone.

Retail contracting and service is done directly by Matthews Engineering Co., a veteran firm headed by R. R. Matthews.

Although Matthews himself heads up both the contracting and the distributing firm, the two operations are kept distinct, each with its own personnel and management.

William C. Steinle, for example, who is vice president of the parent concern, is in direct charge of the company's contracting division, which has a service department headed up by Edgar Weaver, three sales engineers, a construction department superintended by Lloyd Dyche, and a sheet metal shop managed by Weldon Peters.

### Division Services Auto Air Conditioners

Besides the usual type of installation and service work, this division of the firm also services automobile air conditioners, a rapidly growing field in this area.

Royalair activities as an Airtemp wholesale distributor serving some 15 franchised dealers in five counties are directly in charge of Roy P. Cookston, a former advertising agency man who serves as sales manager of Royalair.

His background in sales and promotion is ably complemented by Boyce Farrar, Jr., a graduate mechanical engineer who is a master electrician and plumber and also holds a professional engineer's license. Farrar's basic assignment is to help dealers in their engineering problems.

"Between these two people," Matthews says, "one for promotion and one for engineering, Royalair can cope with just about any problem that comes up."

The room unit and compressor rebuilding operations are set up nominally as a department of Royalair and are managed by Douglas Yates.

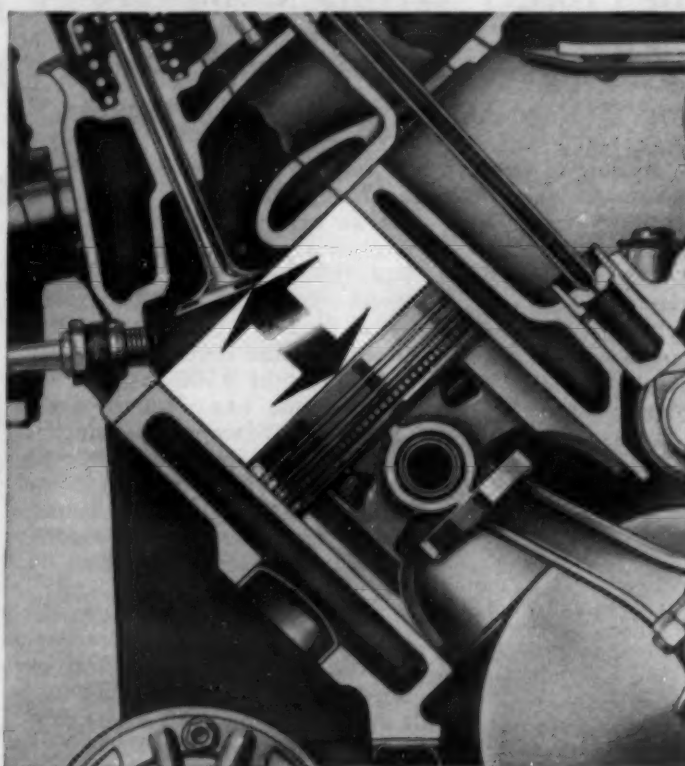
### Aids Dealers In Several Ways

"Royalair tries to help its dealers in several ways," Matthews points out. "We work with dealers on sales, particularly on project type jobs for residential air conditioning. We'll help in sales promotion and advertising by assisting in the preparation of advertising campaigns and participating in joint advertising. Royalair pro-

(Continued on next page)

## SHORTEST STROKE V8 OF ANY LEADING TRUCK!

... one reason for  
top-notch fuel economy,  
low maintenance  
costs in this New  
Chevrolet Truck V8



That picture above gets right to the heart of a modern performance champ, the new Chevy Trademaster V8! The arrow points up the shortest stroke of any leading truck engine—your assurance of power that eats up work while using less fuel, and minimum engine wear stemming from reduced piston travel.

This shorter stroke has brought about a whole new concept of more efficient engine design, exclusive with Chevrolet truck V8's. Because of it, Chevrolet engineers have been able to make

the Trademaster V8 the most compact truck engine on the market, with more horsepower per pound than any other. "Dead weight" has been pared off to give you the efficient performance you want, more pound-pulling power!

So, remember this special kind of short-stroke design Chevrolet truck V8's now bring you. Remember what it means in terms of money-saving, profit-making hauling. Certainly, you'll want to see your Chevy dealer soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

\*Optional at extra cost in 3100 through 4500 models.



The dollar-saver that  
looks like a million!

Here's modern truck beauty that adds to your business prestige! Long, low, forward-sweeping lines provide good advertising for you wherever you go. And you'll go more easily, too, thanks to the nimble maneuvering these new Chevy models provide!



## NEW CHEVROLET TASK-FORCE TRUCKS

Anything less is an old-fashioned truck!

For more information about products advertised on this page use Information Center, page 32.





ACTUAL rebuilding takes place at stations on work bench. Here Marvin Quinn installs stator while Fred Geisen, shop foreman, lowers compressor body into special work fixture.



PARTS for rebuilding are kept in dry atmosphere of air conditioned room, stators being further protected by a canvas cover. Douglas Yates, manager of rebuilding, is checking serial numbers above.

## Contractor Finds Profit--

(Continued from preceding page) vides engineering and service help, too."

The distributing firm also calls on Weaver's service department for assistance in training dealers.

"Whenever we take on a new dealer, he's subject to a very close inspection of his jobs," Matthews explains. "We make sure the jobs are properly installed and started up."

"Dealers in small towns often have limited facilities, so we train them very carefully in their early days. Besides inspecting their early jobs, we go through the evacuating and charging procedure with these dealers."

### Demonstration Panel Is Training Tool

One of the most effective "tools" for training new dealers as well as Matthews' own service personnel is a demonstration panel devised by Edgar Weaver, the service manager, and built by J. D. Boyd, assistant service manager, to show the wiring and function of components of a year-round residential air conditioning system.

### Control Elements Explained

All the control elements of a typical system are mounted on a panel and connected by wiring

which is color-coded the same as in the actual system. The control elements are spread out on the panel, of course, so their function and the wiring can be more easily demonstrated.

Light bulbs are employed to represent the compressor motor and fans. A 7-watt bulb represents the compressor motor starter winding; another 7-watt bulb, the running winding, and two 25-watt bulbs simulate the evaporator and condenser blowers, respectively, the board being for an air-cooled system.

Mounted on the panel are a summer-winter thermostat, high and low pressure cut-out, starting and running capacitors, starting relay, transformer, overload, lockout relay, evaporator fan relay, fan and limit control, auxiliary control relay, "power pile" diaphragm gas valve, "power pile," the main toggle switch, a duplex receptacle (to "plug in" the heating plant), and three toggle switches with red pilot lights to permit cutting out the overload, low pressure cut-out, and high pressure cut-out.

### Trick Wiring Needed To Simulate System

"There's a certain amount of trick wiring involved in this panel," Weaver reveals, "which is necessary to simulate the operation of an actual system."

For example, because light bulbs are employed to represent the starting and running windings of the compressor motor, the capacitors do not actually function as such. In fact, inside the starting capacitor Weaver actually concealed a time delay mechanism which switches the

### Handy Tube Bender Smoothly Bends any pipe or Tubing 3/8"-1 1/8" O.D.



Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER.

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Cadet coolers for connection to local water supply also available.

### DESIGNED FOR HOMES!

Temprite Cadet Model KT-2S, designed expressly for homes, doctor's offices, laboratories, etc. Unit is standard counter height, finished in glistening white. May be used with 2, 3, or 5 gallon bottles, or water reservoir may be filled from kitchen tap. Sanitary cover optional.



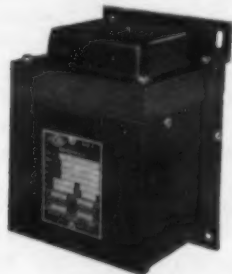
Cadet Model BT-2S over-all measurements only 12" square x 36" high, (excluding bottle).



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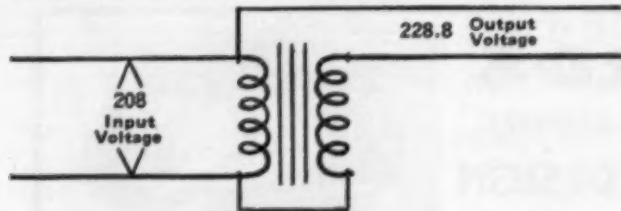
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## MAY HELP YOU SELL MORE AIR-CONDITIONING EQUIPMENT

Many air conditioning installations in older buildings have been postponed due to the cost of supplying adequate electrical facilities. Now, in most cases, this problem is solved with an Acme Electric Buck and Boost transformer. When connected to the existing low voltage electrical source, voltage can be boosted to exactly meet the requirements of the modern air conditioning equipment, often without any extensive rewiring.



The Boost and Buck transformer is essentially a 4 winding insulated type transformer with tap connections to permit interconnection of primary and secondary windings to boost or reduce voltage to meet the needs of the power requirements.

For catalog giving detailed methods of application write for Bulletin BE199.

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## plug-in thermostat for room coolers



Sell thermostatic control with  
every room cooler and make over  
\$7 plus-profit on every sale!

More sales, more profits in room conditioners with the Honeywell TA42M, finest thermostat of its kind. Only needs plugging in! Keeps room comfort constant—turns air conditioner on and off automatically as room temperature demands. Ends overcooling, cuts power costs; unit operates only when it's needed. Quickly installed; no wiring necessary.

Honeywell Room Cooler Thermostats list for as little as \$24.20. See your wholesaler—or write Honeywell, Dept. AN-5-76, Minneapolis 8, Minn.

MINNEAPOLIS  
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112 offices across the nation

## Contractor --

(Continued from preceding page)  
temp compressor rebuilding depot are also of interest. Considerable shop space is devoted to this activity. Procedure followed in rebuilding compressors is outlined by Douglas Yates, department manager:

"When received, a compressor first goes to the teardown section. If the workman sees that the oil is clean and there is no burned smell, the unit is carefully checked before tearing it down to determine if possible what the trouble is.

### Explains Compressor Rebuilding Process

"Most compressors that come in, however, have to be completely torn down," Yates says. "The parts are first steam cleaned and then everything except the stator and rotor is put through a series of cleaning tanks, going through cleaning solutions, rust inhibitor, and sweet water baths. After the parts have been thoroughly dried with hot air and covered with a rust preventative, all the parts of each compressor are placed on specially designed dollies.

"Dollies are then moved to the inspection department where crankcase bearings are installed and all parts that don't measure up to specifications are replaced. Then the dollies are moved to assemblers for the compressor to be built up.

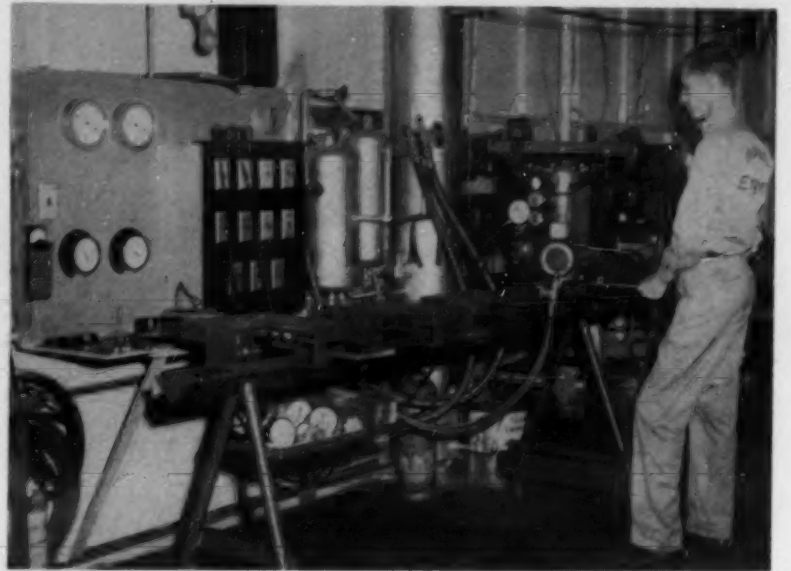
"The department is set up like a production line," Yates points out. "Two men specialize on teardown, one on inspecting parts and installing bearings, and two or three on assembly of compressors.

"When it is necessary to rewind stators, including those that are burned out as well as those that don't measure up to specifications, these are sent out for rewinding.

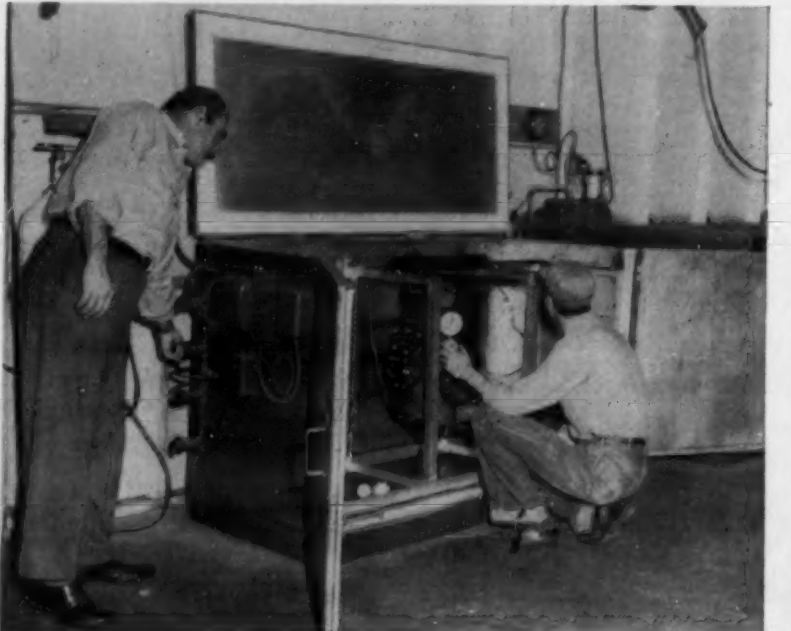
### Compressor Test Rack

"Completed compressors are first sent to the test rack where Fred Geisen, shop foreman, and his assistant check the performance of rebuilt machines," he continued.

The test rack is rather elaborate. The panel is set up to permit tests on either "Freon-12" or "Freon-22" systems, single



AFTER a compressor has been completely rebuilt, it goes to this test rack where it is completely checked out.



OVEN for evaporating and drying compressors following test has doors on top and at front to facilitate handling.

phase or three-phase 230-volt unit to protect the compressor-motors, and every variation of motor operating characteristics employed by Airtemp, Yates explains.

"Characteristics of the motors vary with the make on single phase, so on the board we have wired in eight different starting capacitors, four different running capacitors, and three relay-and-coil assemblies. Merely by flipping switches we can get any combination of capacitor and relay required to test the different motors," says Yates.

Incorporated in the test panel also are high and low pressure cut-outs just as in a complete

unit to protect the compressor-motor assembly. "We usually give the compressor about 20 minutes running time on the test stand, checking the operation with gauges and ammeters that are on the board.

### Evacuating, Drying Ovens Receive Checked Out Units

"When the compressor has checked out okay on test, it is moved to the evacuating and drying ovens. The shop, incidentally, is equipped with an overhead monorail and electric hoist system to simplify handling.

"We pull 28 in. vacuum with (Concluded on next page)

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IN WATER-COOLED

## FREON CONDENSERS

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HELPING to maintain close control over costs, a copy of Work Order accompanies each machine through plant for listing of all parts replaced. Note dollies for keeping all parts of each compressor together.

## West Memphis Firm Expands -

(Concluded from preceding page) a vacuum pump on the units while the oven is maintained at a temperature of 180° to 200° F. for three or four hours or more," Yates says.

Doors are provided on both the top and front of the ovens to facilitate getting the units in and out of the oven and hooking the vacuum lines to the units.

### Units Charged, Checked, Painted

Following dehydration, the units are given a charge of refrigerant and checked for leaks,

after which they go to the paint booth. Following painting, the units are crated for shipping or storage.

How this company handles the "paper work" necessary to keep tab on compressor rebuilding operations is also worthy of note.

The copy of the Return Material Record which comes in with each compressor is first sent to Yates who uses it in making out a Work Order. This latter form, which is numbered serially, is made out in triplicate and provides means for keeping track of the compres-

sor and all the work that is done on it.

First copy of the Work Order is kept on file in Yates' office until the compressor repair has been completed. Second copy is used by Yates to note the time spent on the compressor, this being obtained from individuals' time reports.

Third copy of the Work Order form is placed in a jacket and kept with the compressor on dolly. On the back of this form is a printed list of the most frequently used parts. The assembler notes here how many of which parts he has to replace in rebuilding the compressor.

### Totals Costs Of Labor, Parts

When the rebuilding job has been completed, Yates totals up the direct costs of labor and parts on the back of the third copy of the Work Order. This copy is then sent to the accounting department. First copy

of the Work Order is filed with the Return Material Record, freight records, etc. Yates maintains a file of the second copy of the Work Order under the customer's name.

With the various copies of the Work Order properly filled out, there is not only a complete record of the cost of repairs but such important data as amperage readings of the compressor as well as head, suction, and oil pressures. Thus the history of this machine is readily available if it should ever be returned again for repairs.

### Pittsburgh Plate Glass Div. Names McLaughlin

PITTSBURGH—Appointment of Robert A. McLaughlin as general manager of Pittsburgh Plate Glass Co.'s Fiber Glass Div. has been announced by David G. Hill, president.

Prior to his appointment, McLaughlin had served as director of sales since 1952.

## Food Fair To Open 50 Markets In '56

PHILADELPHIA — During the next year, Food Fair Stores, Inc. plans to open 50 new supermarkets at a cost of \$24 million, Louis Stein, president, declared recently.

He reported that three new stores would be opened by the end of April. Twenty are already under construction and 36 more will be started soon.

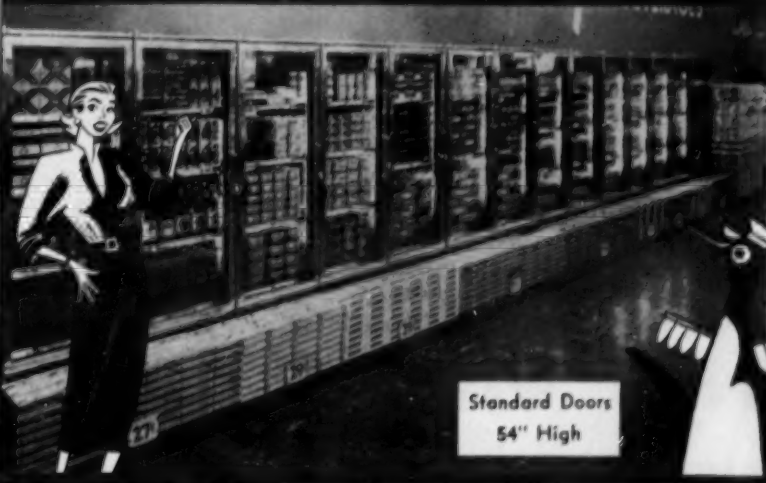
Of these new stores, he said, 15 will be located in New Jersey, 13 in Pennsylvania, 10 in New York, eight in Florida, six in Maryland, three in Connecticut, and two each in Delaware and Virginia.

"Generally speaking," Stein asserted, "Food Fair prefers to own and control rather than rent its stores, fixtures, and other fixed assets, financing these through the sale of debentures and mortgages.

## KING SIZE SERVUE DOORS



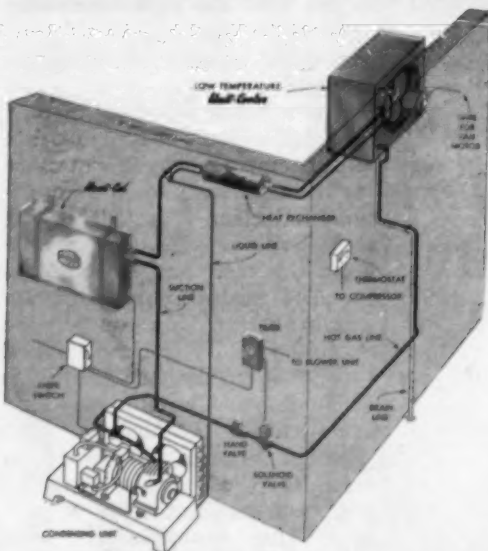
The new KING SIZE Barrdors show more to sell more. Doors shown are 63" high, the model is 5' 5" tall



Standard Doors 54" High

**ALL BARRDORS FEATURE:**  
mirror bright frames, sagless, adjustable shelves, 8' or 9' metal ratchet posts, 48" Slimline lighting.  
(U.L. Approved)  
Electrically heated doors for high humidity areas.  
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## ANNOUNCING THE Heat-Cel LOW TEMPERATURE DEFROST SYSTEM



DESIGNED BY SPECIALISTS IN THE LOW TEMPERATURE FIELD!

Quick pulldown, with maximum capacity from compressor. Performs economically in any ambient, regardless of location or season. Heat for re-evaporation supplied by low wattage ELECTRIC HEATER. Patented DOLE VACUUM principle insures faster heat transfer for quicker defrosting. Dehydration kept at a minimum.

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All doors are insert type, set into heliarc welded frame, and ready to place into any opening. Glass is two pane, hermetically sealed, bearing 5 year warranty.

Some desirable areas open for factory representatives.



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## Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers



### Using Old Steel Ammonia Coil with 'F-12' Compressor

(Continued)

#### USE A SCALE TRAP

Wash out and blow out these coils as well as you can, but you will not get them as clean as the "Freon-12" and oil will. The halocarbon refrigerants — the "Freons," Genetrons, methyl chloride, Carrene 7, etc.—are very good solvents, so the re-

frigerant will gradually loosen and remove the scale left after you have washed and blown the coil as well as you can.

Therefore, do the best job you can, and then provide a suction line scale trap just ahead of the compressor, to catch what the refrigerant will later remove from the system.

#### 2. DRYNESS

Also, use a generous size liquid line drier ahead of the expansion valve. It will not only act as a strainer to protect the expansion valve, but, try as you will you will not get the system as dry

as is demanded by "F-12" or "Genetron-12," so a drier is required to finish the dring of the unit.

After the installation is completed, but before charging, pump a deep vacuum on the system, preferably with a factory-made vacuum pump. Then break the vacuum with "F-12," pump another deep vacuum and again break the vacuum with refrigerant. Then charge; although some men prefer a third vacuum before charging the system.

#### 3. OIL RETURN

It is quite common to use 1 1/4-in. pipe for ammonia coils. If this coil is made with 1 1/4-in. pipe, the gas velocity using "F-12," will be too low for rapid oil return, so you are going to have to watch for indications of oil logging in this coil.

Be sure and feed the expansion valve to obtain a frost-out

on the suction line for at least two or three feet to encourage oil return. If later, there is any indication of oil logging of the coil, you may find it necessary to put on a high-side oil separator.

About a week after installation, take an oil sample from the compressor. If it is discolored, change the oil. Repeat within 60 days.

#### GRAVITY VS. FORCED CONVECTION

And finally, the matter of continuing to use the ammonia coil with the new "F-12" unit. Undoubtedly your customer has had good temperature, humidity, and circulation conditions with this coil, so it is quite understandable that he is inclined to want to continue to use it.

He can, and will probably continue to get good results with it on the "F-12" system. However, he should understand that he

can get equally good results with a forced convection "blower-type" unit.

#### NEW BLOWER COIL CHEAPER IN LONG RUN

On the other hand, it is quite possible that the use of the old coil will result in a temperature difference between coil and air in the cooler of 18° F. or more, whereas with a properly selected blower-coil, he can maintain a TD of 10° to 12°, which will result in higher relative humidity, higher coil temperature, and higher suction pressure with resulting increase of unit capacity, reduction of running time and lower cost of operation.

He should realize that his reason for continuing to use the gravity-type coil is a possible savings in first cost, and not because the gravity-type coil is superior to the forced convection type.

#### SEALED OR OPEN-TYPE UNIT?

There are advantages in both types of units, sealed or open-type, but in general, the sealed unit has won favor over the open-type, particularly in the smaller sizes.

The outstanding advantages of the sealed unit are:

##### 1. No belts or shaft.

These two features alone have greatly reduced service calls on the sealed unit as compared to the open-type.

##### 2. Cost.

As a rule, the sealed unit can be built for a lower cost than the open-type, particularly in the smaller sizes. In the larger sizes, this advantage tends to disappear.

Perhaps the two outstanding advantages of the open type unit are:

##### 1. Flexibility of capacity.

By changing pulley ratios, the displacement and capacity of the open-type compressor can be changed, and it can be adapted more easily to various evaporator temperatures. This is helpful on some applications, but is not important to your job if you size the new condenser properly to the coil.

##### 2. More easily serviced in the field.

This is a consideration in your case, for if you get scale or dirt in the compressor, you can more easily disassemble the open-type and clean it out. This can also be done on the semi-hermetics also, and most of the so-called sealed motor-compressors in the size that you will use on this job, are the semi-sealed type, that can be serviced in the field without having to send them back to the factory.

If you use a good suction scale trap of ample capacity, you need not get scale or dirt into the compressor, even though there will probably be some washed out of the steel pipe coil after it has been installed and in use for a short time.

Regardless of whether you choose a sealed, semi-sealed, or open-type compressor, you should, by all means, use a scale trap, and you should open it and clean it within a week after installation and again about a month later, or sooner if the suction pressure between the scale trap shows that the trap is dirty.



## ANNOUNCING a whole new family of "VIRGINIA" WATER TREATMENT CHEMICALS!

"Virginia" announces the introduction of an entire new family of superior water treatment chemicals specifically designed for use in the air-conditioning, refrigeration and heating industries. These products were developed under field test methods which established their efficiency for practical use.

#### WATER TREATMENT and SCALE INHIBITOR

"Virginia" Water Treatment & Scale Inhibitor is a special blend of sparingly soluble glassy polyphosphates which hold scale-forming solids in suspension or solution, greatly reducing scale buildup on metal surfaces. The slow, controlled solubility of the crystals supplies a continuous, effective inhibiting dosage—no feeder devices are required.

#### SCALE REMOVERS (Solid and Liquid)

When scale has already accumulated, "Virginia" Scale Removers are safe, quick and economical to use. Avail-

able in dry granular form for maximum safety to equipment, and for use in localities where water hardness is less than 200 parts per million; also in liquid form for heavier incrustations and where water hardness is greater than 200 parts per million.

#### NEW ALGAEICIDES

"Virginia" Algae-Cide No. 1 is an organic copper compound which releases an exceptionally high copper ion concentration. It is more effective and more economical than ordinary copper salts. "Virginia" Algae-Cide No. 2 is a blend of two different water-soluble organic compounds for use in eliminating slime and mixed infestations of slime and algae. It is also recommended for killing copper resistant algae.

#### ICE MACHINE CLEANER

"Virginia" Ice Machine Cleaner rapidly and effectively removes scale

and slime from ice machines. It eliminates the cause of objectionable odors and prevents formation of cloudy ice. It is easy, safe and economical to use.

Write for free literature  
about all of these products

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139 Jefferson St.  
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West Norfolk, Va.



ESOTOD • KINETIC CHEMICAL'S "FREON" REFRIGERANTS • V-METH-L  
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REFRIGERATION OILS • WATER TREATMENT CHEMICALS

Available in Canada and many other countries

For more information about products advertised on this page use Information Center, page 32.



## 'Better Heating-Cooling' Promotion To Stress 'Wet' Systems Quality

NEW YORK CITY — Promotional plans of the Better Heating-Cooling Council were made known recently after approval by the board of directors.

Executive Director Franklin Greene announced that a National Promotion Week, a new color sound movie for TV and local use, and a series of fact-finding editorial round tables were planned as part of the Council's nationwide promotion of hot water heating and cooling for homes and small buildings.

These special promotional projects will be combined with the basic program of continuous publicity and promotion produced by the Council's staff.

Designed to stress the Q (for Quality) factor in an effort to create fresh homeowner and builder interest in the long-lasting benefits of baseboard, convector, and radiant heating and cooling, the Council's operation calls for the following initial steps in the \$100,000-plus promotion.

1. A Better Heating-Cooling

Week, to be held this summer.

Keyed to generate homeowner enthusiasm for piped heating and cooling, the Council has hired Tyndall Associates, Inc., New York public relations council, to stage Better Heating-Cooling Week.

2. A brand new half-hour color sound movie, telling the story of this permanent type of comfort, aimed for "living room viewing" by homeowners on local TV stations.

The film will also be available for contractor, wholesaler, manufacturer, and trade association showings.

3. A series of round table editorial conferences for consumer editors of all media. Purpose is to help stimulate this mass-circulation portion of the press, radio, and TV to tell what's new—and economical—in the hot water and steam heating and cooling field.

4. A permanent six-member staff of the Council will carry out a complete public relations and publicity program on a continuous year-round basis throughout the nation.

## Rosen To Head UsAirco Floral City Division

MINNEAPOLIS — Meyer Rosen has been elected a vice president of United States Air Conditioning Corp., it is announced by David E. Feinberg, president.

Rosen will be in charge of the Floral City Heater Div. of UsAirco, in Monroe, Mich.

Rosen had served as president of Floral City Heater Co. from 1935 until its recent acquisition by UsAirco.

Floral City, founded in 1883, manufactures a complete line of gas and oil-fired residential warm air furnaces, as well as combination home heating and cooling units, all under the trade name "Flo-Co."

## Servel Names Kuhen To Product Post

EVANSVILLE, Ind. — G. O. Kuhen, a veteran of 25 years at Servel, Inc., has been promoted to the newly-created position of assistant product director for all-year air conditioning, it was announced.

The announcement was made by A. B. Kennison, vice president and coordinator of research and product development for the firm.

Kuhen will assist Robert K. Eskew, product director, in making continuous studies of trends in air conditioning and allied industries with a view toward introducing new products and improving all current products.

## Unarco Orders Top '55 First Quarter by 41% for 4-Year High

CHICAGO — Orders received by Union Asbestos & Rubber Co. for the first quarter of 1956 are up more than 41% over the same period in 1955, Edwin E. Hokin, president, announced at the company's annual stockholder's meeting held here recently.

In the first three months of this year orders totaled \$5,272,872, the largest amount of any similar period in the past four years, Hokin said, compared with \$3,729,622 in the first quarter of 1955.

He attributed the increase primarily to the large purchases of equipment placed in recent months by the nation's railroads.

Prospects for greater sales in all divisions of the company, Hokin said, look favorable for the remainder of the present year.

He told shareholders that a program of decentralization designed to achieve greater operating efficiency and economies had been placed into immediate effect.

As part of this program, he said, Vice President Emil T. Johnson had been named general manager of Unarco's Fibrous Products Div., and Vice President John F. Corcoran, general manager of divisions based at the Blue Island plant, including truck refrigerator units, hand brakes, railroad supplies, and steel fabricating.

## Buensod-Stacey Elects Buensod Board Chairman Smith Chief Executive

NEW YORK CITY — Milton S. Smith, vice president and treasurer of Buensod-Stacey, Inc., has been elected president and chief executive officer of the company, it was announced recently.

Smith, who 20 years ago was one of the founders of the company, succeeds A. C. Buensod, also a founder of the company and president since its organization, who has been elected to the new post of chairman of the board.

R. O. McGary, also a founder, has been elected senior vice president in charge of sales.

Before Buensod-Stacey, Inc. was incorporated to do business in the latter part of 1935, all three men, together with several other associates, had been connected with the Carrier Corp. in the application of air conditioning systems, both for industrial and commercial usage, it was stated.

### PRESSTITE

± 165 Cork Insulation Tape



**Stops Drip!**

See your wholesaler or WRITE

PRESSTITE ENGINEERING CO.  
3774 CHOUTEAU AVE. • ST. LOUIS 10, MO.



ACCESSIBILITY of central control panel on UsAirco packaged air conditioner is demonstrated by R. M. Dawson, sales representative in San Antonio, at a distributor and dealer meeting. Shown in the photo are left to right, Perry Widener, Dawson, Les Simmons, Ben Falk, and Henry Meyer. The meeting was one of a series of spring promotion sessions sponsored throughout the South and Southwest by UsAirco representatives for the firm's residential and commercial equipment.

## NEMA Full Color Film Explains, Promotes Electric Home Heating

NEW YORK CITY — Electric House Heating Equipment Section of the National Electrical Manufacturers Association released on May 1 a full-color sound-slide film as "an eye and ear approach to electric house heating sales," it was announced.

"Heat Your Home Electrically" consists of 96 colored picture frames on standard 35 mm. filmstrip. A companion recording on standard 33 r.p.m. long-playing vinyl record can be played simultaneously with the showing.

Included in the promotion package are 100 pamphlets containing supplementary material for audience handout following the 18 minutes of heating information told in the film in an "easy-to-understand" manner.

Claimed to be a potent sales tool for utility salesmen, electrical contractors, distributors, and builders, the film is said to answer questions such as: "Is electrical heating practical? How does it work? What are its advantages to me? and Can I afford it?"

Price of the filmstrip is \$15.

**THE BEST WATER REGULATOR FOR SEVERE SERVICE**

FREON-12  
FREON-22  
AMMONIA

**Performance Guaranteed**



**Bronze alloy bodies  
Simplest construction  
Same bellows—all sizes  
Anti-chatter design  
Easiest disassembly  
Sizes 1/4" to 1 1/2"  
Other types to 4" size**

FOR BETTER RESULTS INSIST ON REFRIGERATING SPECIALTIES

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• WATER REGULATORS  
• BACK PRESSURE REG.

**REFRIGERATING SPECIALTIES COMPANY**

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**HERE IS A BIG MONEY SAVER**  
The New Low Cost

Portable

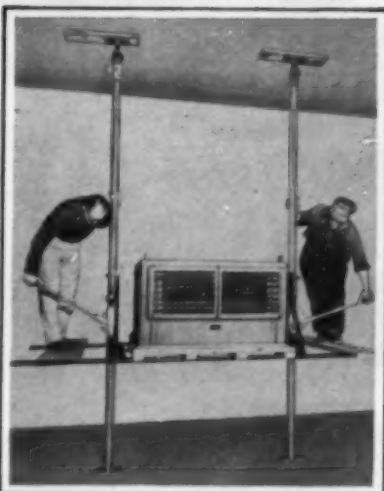
*Hastings*

**"HOIST-IT"**

**2 MEN  
Can Easily and  
Safely Raise  
200 to 4,000 Lbs.  
Up to 18 Feet  
In One Hour**

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**Ideal for  
All Types of  
Equipment**



Write for Information and Price  
**HASTINGS AIR CONTROL, Inc.**

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# Heat Pump Air Conditioning Expands West Memphis Firm's Business

*Heat, Plentiful Water Supply, Even Summer-Winter Load Balance, Moderate Power Rates, Safety, Constant Temperature Help Sales*



AUTO sales room in West Memphis, Ark. has year-round comfort thanks to heat pump installation. Here Bill Klink (left) of Klink Motor Co. checks dual thermostat setting with Abner F. McGehee of Southern Heat Pump Co.

By C. Dale Mericle

WEST MEMPHIS, Ark. — "Down in this part of the country we're reaching the point where all the better business places and homes are air conditioned. You can pick up any architect's drawing and it will call for 100% air conditioning. This solves a good part of the problem in selling heat pumps."

This view is mighty encouraging to Southern Heat Pump Co. here, which has been promoting and installing heat pumps for nearly 10 years in the tri-state area of eastern Arkansas, western Tennessee, and northern Mississippi.

## Business, Institutional Installations Growing

Many of the firm's heat pump installations have been in residences, but there's a growing number going into business places and institutions, point out George Craddock, chief partner in the firm, and Abner F. McGehee, a limited partner.

Besides his heat pump business, which maintains a branch

in Chattanooga, Tenn., Craddock operates an appliance dealership, an air conditioning contracting firm, and a well drilling firm in West Memphis.

The latter business ties in nicely with heat pump, for most of those installed by the firm are water-to-air jobs depending on well water for the heat source.

## Good Supply of Water Which Averaged 62°F.

A number of air-to-air systems have been installed, but, as McGehee points out, "there's a good supply of water, in the West Memphis area at least, which averages 62° F. the year-round."

A variety of makes of heat pumps has been used by Southern Heat Pump for its jobs, including A.C.I., G-E, Marvalr, and Typhoon Prop-R-Temp, and a number of installations have been built-up systems.

Besides the obvious need for air conditioning in summer and the plentiful supply of easily



SAFETY is one of the major features of a heat pump, so no one seems concerned that cartons of oil cans and antifreeze are piled around 10-ton heat pump serving auto showroom.

obtainable water, other factors that contribute to the success of the heat pump in this area are the fairly even balance between summer and winter loads, and moderate power rates, according to McGehee.

The winter load does run a bit higher than the cooling load, though, he says.

"For winter we use 0° - 70° F. for design, even though the winter outdoor temperatures seldom get down to 0° F. We have had some sub-zero weather, however. We use 100° F. as our summer design temperature despite the handbook's 95°," he explains.

Power rates in the area for heat pump service range from 1 cent to 2 cents per kilowatt. The territory covered by Southern Heat Pump includes TVA power, municipal lighting plants, and private utilities.

## Safety, Constant Temperature Stressed

One of the big sales points of the heat pump which this firm stresses is its safety as a heating device, but its ability to maintain a constant temperature year around is most important, too.

On the safety angle, Southern Heat Pump cites the experience of one homeowner whose house

TWO 10-ton heat pumps serve American Legion Post 53 in West Memphis, permitting cooling or heating to be supplied at the moment needed.

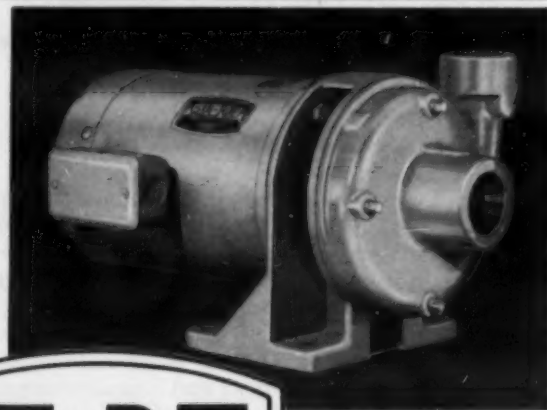


was badly damaged when a conventional heating system blew up and set the structure ablaze.

After surveying the damage, the owner had the firm replace the furnace with a 10-ton heat pump.

"Modern heat pumps," McGehee comments, "are absolute—"

(Concluded on next page)



**STA-RITE**

*the ONE pump*

*designed to cut costs of*  
**AIR CONDITIONING INSTALLATION AND MAINTENANCE**

You and your customers get more for your money with Sta-Rite. First cost is usually lower than comparable pumps. More—check cost per gallon delivered. Cost of installation. Cost of maintenance. Yes, and check cost against the expected life of the pump. Sta-Rite pumps give you clear-cut superiority. You see it the way we make bronze impellers, the full-power, ball-bearing, capacitor-type motors, the leak-proof mechanical seal, the one-piece corrosion-resistant shaft.

Ask your wholesaler. Also write for copy of new bulletin describing Sta-Rite Air Conditioning Pumps.

**STA-RITE**

**STA-RITE PRODUCTS, INC.**

701 S. Eighth Street, Delavan, Wisconsin  
Los Angeles, Calif. • Chamblee, Ga.  
In Canada: STA-RITE Pumps (Canada) Ltd., Ajax, Ont.

Do you know the real  
**HEAT PUMP** story?

YOU can build a highly profitable new business with revolutionary Prop-R-Temp heat pumps. . . . People are buying more of 'em every year . . . in 5 years one of our dealers has grown from a \$65,000 annual volume to \$465,000, and that's all heat pumps. That's why Typhoon leads the field today. Sales will expand 12 times in the next 2 years. Prop-R-Temp's pioneering has developed the broadest line and the highest performing units in the field. A "wait and see" attitude can only help your competitor. . . . Write us today and get the full story. . . .

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**Prop-R-Temp**  
**HEAT PUMP**

**TYPHOON HEAT PUMP CO.**

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**Airtemp**  
DIVISION  
**CHRYSLER CORP**

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**Dealers**

**are**

**Making Money!**





PLANS for another 10-ton heat pump to be added to American Legion Post are discussed by William Bowcock, finance officer, and Abner F. McGehee of Southern Heat Pump Co.

## Heat Pumps Build Business - -

(Concluded from preceding page) ly automatic. You can set the temperature and forget about it. Automatically it takes care of sudden changes in outdoor temperature. And if you should have a large gathering at a party in your home during the heating season, if the presence of so many people raises the temperature inside the house, the heat pump will automatically switch from heating to cooling to compensate for the change."

The newer heat pumps offer another advantage, too, he says.

"Advances made by manufacturers in reducing the space requirements of the heat pump have helped considerably in sales. Some of the earlier systems required a considerable amount of floor space, and sometimes the owner was reluctant to devote that much space for it."

Although many of the company's installations are for homes, Southern Heat Pump has installed systems for churches and commercial applications, among others.

Recent commercial installation was a 10-ton package heat pump for the new showroom of

Klinke Motor Co., West Memphis Dodge and Plymouth dealer.

Unit itself is located in a storage room opening off the parts department, and is connected by ductwork running to the auto sales floor and offices. A dual control thermostat on the wall of the showroom controls its operation.

### Firm Lays Out Complete Job

On heat pump installations the firm lays out the complete job, including ductwork and wiring, but sublets the latter two. As far as the customer is concerned, however, Southern Heat Pump is responsible for a "turnkey" job.

Another installation of note handled by the firm consists of two 10-ton package heat pumps serving the hall of American Legion Post 53 in West Memphis.

### Year-Round Conditioning Virtually a Must In Hall

Year-round air conditioning is virtually a must for the hall because the Post's regularly sponsored functions attract consider-

able numbers, indicates William Bowcock, finance officer and club manager for the post.

For this installation, additional outside air and exhaust are provided to minimize the effects of the great amount of smoking that takes place, McGehee points out.

"We're now preparing to add a third 10-ton heat pump here to handle an addition being constructed for the club," he says. "This ought to be evident that the heat pumps are satisfactory."

One of the early jobs put in by the company was for an apartment house. A series of five 10-hp. heat pumps was required to provide year-round air conditioning for the apartments in this project.

A somewhat unusual residential installation on the records of Southern Heat Pump required a 15-ton system. Water is pumped from a well to the heat pump and thence to a 3,000-gal. storage tank. Water is then supplied from the tank to the house for normal use and to a swimming pool. Water hookup for fire protection is also incorporated in the system. Final discharge of the water sprinkles a three-acre lawn.

The big storage tank provides a supply of water for house use and fire protection in the event the pump should fail.

Questioned as to whether use of well water for heat pump service might not lead to scaling problems, McGehee says water treatment isn't necessary on heat pumps.

### Scaling Easy To Handle In Heat Pumps

"Scaling does develop, yes, but it can be easily removed. First we turn the water off and then freeze the coil slightly. Then we turn the water back on and reverse the heat pump cycle. The expansion and contraction

which results from quickly alternating the cycles causes the scale that might be present to flake off.

"If the water is bad, we have to descale about once a year, but we consider this as just part of a normal service operation on heat pumps," he explained.

Water problems are also minimized, he added, by using a submersible pump in the well supplying the heat pump. This keeps air in the water system to a minimum and reduces oxidation.

As a general practice Southern Heat Pump gives a one-year guarantee that includes free service plus the additional warranties offered by manufacturers of components.

## Williamson Offers Dealers 'New Look In Heating, Cooling'

CINCINNATI — A two-day meeting was held here recently by the Williamson Co. to acquaint its dealers from adjacent states with four complete lines of new gas and oil heating equipment and five types of air conditioning equipment.

More than 250 dealers attended the "New Look in Heating and Cooling" conference. Supplemental field meetings will be held to reach the firm's entire dealer organization throughout the nation.

Discussing the "New Look in Cooling," Hugh Calahan, vice president in charge of the cooling equipment division, stated the company had rounded-out its line of air conditioning units from 2 to 7½-ton capacity with the introduction of an air-cooled 4-ton model which, he said, develops full 4-ton capacity at 105° F.

Gustav Leytze, vice president and sales manager, claimed at

the gathering that Williamson's 1956 line "represents the widest range of models offered."

Marvin E. Ralston, in charge of product design, spoke on the "New Look in Heating." He pointed out the company's new heating units with rounded-corner design, new nameplates, and new colors.

"Williamson's new easel presentations will be a powerful tool for salesmen's use in contacting builders and dealers," declared Paul Jensen, vice president in charge of dealer sales division.

J. Preston Field, vice president in charge of the distributor sales division, described the firm's program in the prefabricated fittings field.

C. T. Pfirrmann, advertising manager, told the assembled dealers that spring and summer promotions of the Williamson line will be backed by the largest advertising program in the firm's history.

Are you in the dark about VALVES?



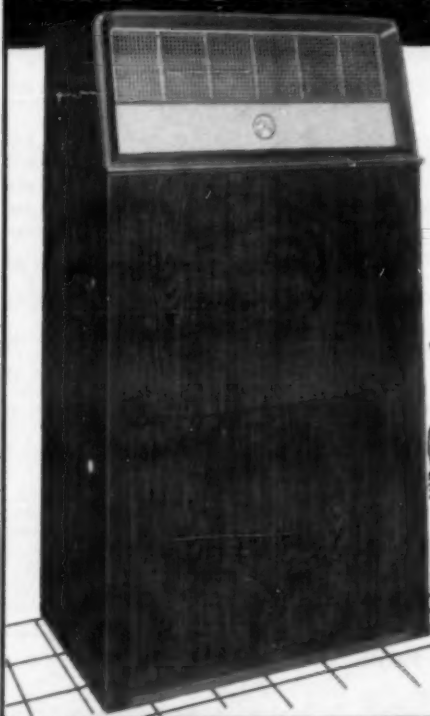
Now off the press—  
**NEW Primore Refrigeration Valve Catalog**

Here's a book that enlightens you on many of your valve problems. This comprehensive catalog gives complete details, application data and other pertinent information on the many types of valves now used on Household and Commercial Refrigeration Units, Residential and Automotive Air Conditioning, as well as Compressors, Receivers, Condensers and Evaporators. Primore Valves are hydrogen brazed steel constructed, thereby resulting in considerable savings to the user. A section of this catalog also covers Special Valves, Parts and Fittings.



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## New compactness in air-cooled AIR CONDITIONER design!



Smallest air-cooled, self-contained (not remote) 5-ton central type unit made.

5 natural wood-grain finishes available on all free-standing models.

Completely automatic, thermostat controlled, air-cooled condenser.

MODEL RO-525A (with air distribution head)

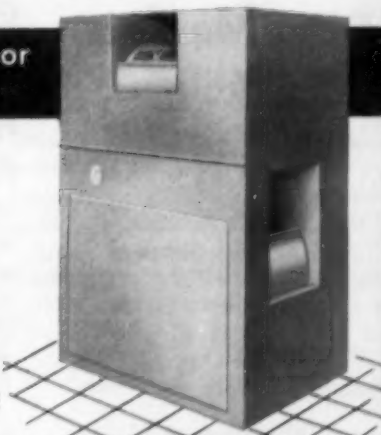
Complete air conditioning for entire home—or equivalent commercial or office area—at the lowest cost in smallest space! GENERAL AIR CONDITIONERS deliver 2, 3 or 5 tons of cooling. All models operate on standard outlet (220 V, single and 3 phase except 2-ton—single phase only).

Attic, roof, outside, or free-standing units

### NATIONWIDE SALES AND SERVICE

Offices and warehouses:  
LOS ANGELES • ATLANTA  
BOSTON • CHICAGO  
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WRITE today for details. Franchise dealerships available.



MODEL RO-525A (without air distribution head)

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**GENERAL AIR CONDITIONING CORP.**

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Los Angeles 23, California

FIVE YEAR GUARANTEE—easy payment plan

MODEL NO.	NOMINAL CAPACITY	TOTAL COOL. B.T.U.	COOLING C.F.M.	OUTSIDE DIM.
FL-2	2 Ton	24,000	900 @ .3 S.P.	30Wx21Dx43H
RO-26	2 Ton	24,000	1000 @ .3 S.P.	30Wx21Dx34H
RO-31	3 Ton	36,000	1200 @ .2 S.P.	30Wx23Dx38H
RO-31 H.P.	3 Ton	37,700	1400 @ .3 S.P.	30Wx25Dx40H
RO-525 A	5 Ton	65,500	1800-2400 @ .3 S.P.	40Wx26Dx57H

Thermostat has 3 positions: Continuous—Automatic, Fan & Compressor—OFF.



**12 NEMA Firms Sell 292,090 Refrigerators In January**

Summary for January, 1956  
Complete Electric Household Refrigerators Only—Sales by Sizes—Units

Sizes	Domestic	Canadian	Foreign	Total
1. 3 cu. ft. (3.4 & under)...	923	...	13	936
2. 4 cu. ft. (3.5 to 4.4)...	...	...	...	...
3. 5 cu. ft. (4.5 to 5.4)...	...	...	...	...
4. 6 cu. ft. (5.5 to 6.4)...	1,073	...	...	1,073
5. 7 cu. ft. (6.5 to 7.4)...	7,521	447	418	8,386
6. 8 cu. ft. (7.5 to 8.4)...	29,174	272	6,900	46,346
7. 9 cu. ft. (8.5 to 9.4)...	12,069	473	447	12,989
8. 10 cu. ft. (9.5 to 10.4)...	55,846	1,032	3,226	60,104
9. 11 cu. ft. (10.5 to 11.4)...	61,783	774	2,779	65,336
10. 12 cu. ft. (11.5 to 12.4)...	56,905	243	1,311	58,459
11. 13 cu. ft. (12.5 & over)...	*87,572	*166	*723	*88,461
12. Total	372,866	3,407	15,817	392,090

Refrigerators Having Two Exterior Doors (All Sizes Included In Above)..... 33,030 631 1,411 55,062

\*Combined to prevent possible disclosure.

Participating companies: Admiral Corp.; Crosley & Bendix Home Appliances Div.; Avco Mfg. Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., a Div. of General Electric Co.; Kelvinator Div.; American Motors Corp.; Norge Div.; Borg-Warner Corp.; Philco Corp.; Appliance Div.; Servel, Inc.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.

**19 NEMA Firms Sell 51,017 Freezers In January**

Summary for January, 1956

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

Sizes	Domestic	Canadian	Foreign	Total
1. 6 cu. ft. (6.4 & under)	...	...	...	...
2. 7 & 8 cu. ft. (6.5 to 8.4)	*1,919	*2	*10	*1,931
3. 9 & 10 cu. ft. (8.5 to 10.4)	1,424	...	71	1,425
4. 11 & 12 cu. ft. (10.5 to 12.4)	909	24	8	941
5. 13 & 14 cu. ft. (12.5 to 14.4)	17,239	398	1163	17,496
6. 15 cu. ft. (14.5 to 15.4)	17,415	1,167	1,631	18,213
7. 16 & 17 cu. ft. (15.5 to 17.4)	4,601	22	35	4,658
8. 18 & 19 cu. ft. (17.5 to 19.4)	6,457	188	56	6,701
9. 20 & 21 cu. ft. (19.5 to 21.4)	3,232	...	2	3,234
10. 22 cu. ft. (21.5 & over)	14,973	17	18	14,988
Total Chest Models	3,121	79	30	3,230
Total Upright Models	2,856	23	51	2,929
Total All Models	3,289	114	7	3,410
Total Chest Models	11,295	112	11	11,297
Total Upright Models	36,905	576	744	38,225
Total All Models	23,388	146	258	23,792
Total All Models	49,293	732	1,002	51,017

\*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1 & 2 combined because of possible disclosure of individual company data.

‡Chest models for items 3 & 4 combined because of possible disclosure of individual company data.

§Chest models for items 4 & 5 combined because of possible disclosure of individual company data.

¶Upright models for items 6 & 7 combined because of possible disclosure of individual company data.

‡†Upright models for items 9 & 10 combined because of possible disclosure of individual company data.

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliances Div.; Avco Mfg. Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div.; American Motors Corp.; Maytag Co.; The Norge Div.; Borg-Warner Corp.; Philco Corp.; Appliance Div.; Revco, Inc.; Servel, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.; Wilson Refrigeration, Inc.

**Mueller Brass 6 Mos. Sales May Hit \$40 Million, Earnings \$1.4 Million**

PORT HURON, Mich.—Sales and earnings of Mueller Brass Co. here are being maintained at a rate about 30% higher in the first six months of its fiscal year ending May 31, than for the similar period last year, F. L. Riggin, president, told the annual meeting.

Improvement in profit margins which developed in the first three months of the fiscal period has continued so far in the second quarter.

"The improvement of profit margins," Riggin explained, "reflects improved operating efficiency and the benefits of new equipment and methods introduced in 1955."

On the basis of current operations, Riggin estimated that sales for the 6-months fiscal period ending May 31 would ap-

proximate \$40 million and earnings would be about \$1,400,000, equal to around \$2.50 a share on the 557,458 common shares.

This would compare with sales of \$31,999,200 during the six months ended May 31, 1955, and earnings of \$1,065,378, or \$1.92 a share on the outstanding common stock at that time.

**3 York Distributors**

YORK, Pa.—York Corp. has appointed three new wholesale York room air conditioner distributors, it was announced by R. E. Cassatt, manager of sales, Commercial Div.

They are: Appliance Wholesalers, Inc., Detroit; Artercraft Electric Supply Co. of Maryland, Salisbury; and Illinois Appliance, Inc., Peoria.

**Etheridge To Assist Chapman at Kelvinator**

DETROIT—G. T. Etheridge, former Kelvinator western regional manager, has been named assistant to B. A. Chapman, vice president and general manager of Kelvinator Div., American Motors Corp.

In his new position, Etheridge will be responsible for special sales and purchasing assignments, Chapman announced.

A 22-year veteran of appliance sales and sales engineering, Etheridge joined Kelvinator in 1941 as commercial sales representative in Cleveland. He rose to sales manager of the commercial wholesale division and served on special assignment for government contract work.

In 1952, he was made western regional manager in charge of Kelvinator's field sales organization in central and western United States. Before joining Kelvinator, he held various positions with appliance distributors and a manufacturers agent.

**Copeland Names Streck Factory Manager for Compressor Operation**

SIDNEY, Ohio—Copeland Refrigeration Corp. has appointed Charles Streck factory manager of the company's compressor manufacturing operations.

Streck was graduated from Washington university, St. Louis, in 1934 as a mechanical engineer. Prior to joining Copeland, he was factory manager of the AirCraft Div. of Hussmann Refrigerator Co., St. Louis, and Kupfer Products Co., Madison, Wis.

Before World War II, Streck was chief engineer for American Bakers Machinery Co. and Emerson Electric, St. Louis. He also served as production control supervisor and later chief of methods for United Cartridge Div. of Western Cartridge.

**Frigidaire Ad Agency Names Miss Fitz-Gibbon**

NEW YORK CITY—A special consultant on advertising copy and merchandising for Frigidaire Div. of General Motors Corp. was named recently by the firm's advertising agency here, Kudner Agency, Inc.

Bernice Fitz-Gibbon, widely known in the merchandising field, has worked in the advertising departments of Macy's, Wanamaker's, and Gimbel's, and as consultant for Stroock Woolens and John Wanamaker. She writes for a wide group of periodicals.

In announcing the appointment, Kudner said that "retailers credit Miss Fitz-Gibbon with a selling approach which created a merchandising revolution."

**Bohn First Quarter Net Sales Volume Hits \$15,520,128 as Diversification Progresses**

DETROIT — Stockholders of Bohn Aluminum & Brass Corp. were told by S. D. Den Uyl, president, that second-quarter net sales are expected to about equal the first quarter's \$15,520,128.

Bohn's diversification program "has now developed to the point at which we are less than one-third automotive parts, compared with 60% three years ago," Den Uyl declared.

Reports for the quarter ended March 31 are: Net sales of \$15,520,128, up from \$13,719,759 in 1955 and \$11,204,801 the preceding year.

Profit before income taxes now is \$1,253,454 over \$978,093 last year and \$590,747 during 1954.

Net profit after taxes comes to \$582,454, an increase over the \$474,685 a year ago and \$289,057 the previous year.

**12 NEMA Firms Sell 298,742 Refrigerators In February**

Summary for February, 1956

Complete Electric Household Refrigerators Only—Sales by Sizes—Units

Sizes	Domestic	Canadian	Foreign	Total
1. 3 cu. ft. (3.4 & under)...	667	...	4	671
2. 4 cu. ft. (3.5 to 4.4)...	...	...	...	...
3. 5 cu. ft. (4.5 to 5.4)...	...	...	...	...
4. 6 cu. ft. (5.5 to 6.4)...	639	...	...	639
5. 7 cu. ft. (6.5 to 7.4)...	4,497	580	434	5,491
6. 8 cu. ft. (7.5 to 8.4)...	47,032	1,141	10,387	58,560
7. 9 cu. ft. (8.5 to 9.4)...	12,556	1,286	1,042	14,884
8. 10 cu. ft. (9.5 to 10.4)...	36,514	990	2,643	40,147
9. 11 cu. ft. (10.5 to 11.4)...	66,708	1,199	2,921	70,828
10. 12 cu. ft. (11.5 to 12.4)...	64,909	924	1,576	67,409
11. 13 cu. ft. (12.5 & over)...	38,576	697	850	40,113
12. Total	272,098	6,787	19,857	298,742

Refrigerators Having Two Exterior Doors (All Sizes Included In Above)..... 52,615 526 1,266 54,407

Participating companies: Admiral Corp.; Crosley & Bendix Home Appliances Div.; Avco Mfg. Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., a Div. of General Electric Co.; Kelvinator Div.; American Motors Corp.; Norge Div.; Borg-Warner Corp.; Philco Corp.; Appliance Div.; Servel, Inc.; Westinghouse Electric Corp.; and Whirlpool-Seeger Corp.

**19 NEMA Firms Sell 54,932 Freezers In February**

Summary for February, 1956

Electric Farm and Home Freezers—Complete—Sales by Sizes—Units

Farm and home freezers complete with high and low side and cabinet, where 50% or more of the net cabinet capacity is designed for the freezing and/or storage of frozen foods.

Sizes	Domestic	Canadian	Foreign	Total
1. 6 cu. ft. (6.4 & under)	...	...	...	...
2. 7 & 8 cu. ft. (6.5 to 8.4)	*1,697	*68	*28	*1,793
3. 9 & 10 cu. ft. (8.5 to 10.4)	1,114	...	72	1,116
4. 11 & 12 cu. ft. (10.5 to 12.4)	1,357	57	17	1,431
5. 13 & 14 cu. ft. (12.5 to 14.4)	15,245	1,290	1,228	15,763
6. 15 cu. ft. (14.5 to 15.4)	18,542	1,181	1,282	18,905
7. 16 & 17 cu. ft. (15.5 to 17.4)	6,388	127	165	6,680
8. 18 & 19 cu. ft. (17.5 to 19.4)	6,625	246	120	6,991
9. 20 & 21 cu. ft. (19.5 to 21.4)	3,232	...	2	3,234
10. 22 cu. ft. (21.5 & over)	13,769	122	112	13,803
Total Chest Models	4,034	7	20	4,061
Total Upright Models	4,157	37	3	4,197
Total All Models	4,721	85	31	4,837
Total Chest Models	1,063	...	10	1,073
Total Upright Models	22,352	22	22	22,396
Total All Models	30,932	544	538	32,014
Total Upright Models	22,025	478	415	22,918
Total All Models	52,957	1,022	953	54,932

\*Chest models for items 1 & 2 combined because of possible disclosure of individual company data.

†Upright models for items 1 & 2 combined because of possible disclosure of individual company data.

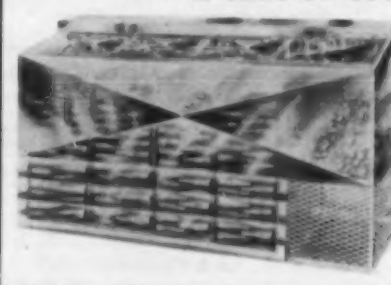
‡Upright models for items 3 & 4 combined because of possible disclosure of individual company data.

§Chest models for items 4 & 5 combined because of possible disclosure of individual company data.

¶Upright models for items 6 & 7 combined because of possible disclosure of individual company data.

‡†Upright models for items 9 & 10 combined because of possible disclosure of individual company data.

Participating companies: Admiral Corp.; Ben-Hur Mfg. Co.; Carrier Corp.; Crosley & Bendix Home Appliances Div.; Avco Mfg. Corp.; Frigidaire Div.; General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; Kelvinator Div.; American Motors Corp.; Maytag Co.; The Norge Div.; Borg-Warner Corp.; Philco Corp.; Appliance Div.; Revco, Inc.; Servel, Inc.; Sub-Zero Freezer Co., Inc.; Victor Products Corp.; Westinghouse Electric Corp.; Whirlpool-Seeger Corp.; Wilson Refrigeration, Inc.

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Fortunately, we get numerous other copies in this division." As important as these survey results were to the NEWS, they are even more important to OEM suppliers.

A glance at the following breakdown will show who reads your sales story—in the NEWS. Aren't they important to you?

DEPARTMENT	NO. OF READERS	% DEPARTMENT HEADS
Chief Executives	63	
Sales	132	100%
Engineering	118	96%
Purchasing	32	100%
Service	58	77%

Production	50	93%
Advertising	48	89%
Promotion	19	100%

TOTAL READERS: 520

AVERAGE READERS PER COPY: 7.4

Yes, mighty important men. Busy men. Difficult to contact men. If you want to tell your product story to them—these men who control the purchasing power of the industry—the place to do it, obviously, is in the NEWS. Then you know it will be read by the people who make the decision to buy. So do your first job where the first job is being done—in the NEWS.

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NEW YORK, 521 Fifth Ave., MUrray Hill 7-7158, Robert M. Price.  
CHICAGO, 134 S. LaSalle St., FRanklin 2-8093, Allen Schildhammer.  
LOS ANGELES, 4710 Crenshaw Blvd., AXminster 2-9501, Justin Hannon.  
DETROIT, 450 West Fort St., WOodward 2-0924, Joe Sullivan.





## Servicing Automobile Air Conditioners

BY C. DALE MERICLE

This is the final instalment describing the air conditioning system installed in Chrysler cars.

Makes previously discussed have included A.R.A., Frigikar, Automotive Air Conditioning, Pivot, Novi, Oldsmobile, Buick, Pontiac, Chevrolet, Ford, Nash, Mark IV, Mobil-Aire, and Lincoln-Mercury.

Next instalment will start the description of the units used in Plymouth cars.

### CHRYSLER (3)

Chrysler Div.  
Chrysler Corp.  
Detroit 31, Mich.

#### SERVICE HINTS

##### Evacuating System

To evacuate its air conditioning system Chrysler Div. recommends the use of a vacuum pump and the double-evacuation method.

With the vacuum pump connected to the system through a gauge manifold set, the vacuum pump should be operated until a vacuum of 26 to 28 in. is reached.

Failure to reach a vacuum of 26 to 28 in. indicates a leak.

After this vacuum has been maintained for five minutes with the vacuum pump operating, the vacuum pump should be turned off and disconnected, and the system charged with 1 lb. of "Freon-12."

Start the engine and adjust speed to 1,200 r.p.m. Turn blower control to "high" and temperature control to "cold." Operate for five minutes and check system for leaks.

Then discharge the system, re-connect vacuum pump, and pump a vacuum of 26 to 28 in. for 30 minutes.

The system is now ready to be charged.

##### Charging System

Chrysler air conditioning systems are charged through the low side in the usual manner. The full charge is 4 lbs. of

"Freon-12" in 1955 and 1956 models.

For charging, the car engine should operate at 1,200 r.p.m. with the blower control set on "low" and the temperature control at "cold" position.

##### Operating Pressures

If an air conditioning system is operating normally otherwise, the discharge pressure will vary with the ambient temperature. As a guide to what can be expected, Chrysler lists the following as average discharge pressures for various ambient temperatures at an engine speed of 1,200 r.p.m.:

Ambient Temp.	Discharge Pressure (p.s.i.g.)
60° F.	100 - 150
80° F.	140 - 190
100° F.	190 - 240
110° F.	230 - 280

##### Superheat Setting

Superheat setting of the thermostatic expansion valve used by Chrysler on its 1955 and 1956 systems cannot be adjusted in the field. The valve is pre-set to maintain a superheat of between 8° and 15°. If the superheat being maintained is not within the range of 8° to 15°, the valve must be replaced. Before replacing the valve, however, make certain thermo bulb of valve is making good contact.

##### Trouble Chart

1. Blowers not operating.

Possible causes:

A. Faulty circuit breaker.

B. Open circuit in wiring.

C. Faulty motor wiring.

D. Faulty control switch or

resistors in system.

E. Loose connections.

F. Motor burned out.

G. Armature shorted or grounded.

H. Bearings frozen.

I. Brushes stuck or worn.

2. Blowers and compressor operating—no cooling.

Possible causes:

A. Shortage of refrigerant.

B. Restriction in system.

C. Compressor valves not functioning properly.

D. Expansion valve faulty.

3. Blowers operating—partial cooling.

Possible causes:

A. Shortage of refrigerant.

B. Expansion valve not functioning properly.

C. Compressor operating above normal pressures.

D. Compressor valves faulty.

E. Restricted condenser or discharge line.

F. Thermostatic switch or solenoid by-pass valve inoperative.

G. Air passages through condenser blocked by bugs, dirt, mud, or by bug screen.

H. Improper refrigerant.

4. Low suction pressure and low head pressure.

Possible causes:

A. Shortage of refrigerant.

B. Strainer-drier plugged.

C. Liquid line plugged.

D. Improper superheat setting of expansion valve.

E. Thermostatic bulb of expansion valve has lost its charge.

F. Expansion valve screen or port plugged with dirt or moisture.

G. Compressor valves faulty.

5. Low suction pressure and high head pressure.

Possible cause:

A. Plugged discharge line or condenser.

6. High Head pressure.

Possible causes:

A. Air flow through condenser restricted by bugs, etc.

B. Air and moisture in system.

C. Too much refrigerant.

7. High head pressure and normal suction pressure.

Possible causes:

A. Air in system.

B. Too much refrigerant.

8. Low suction pressure and normal head pressure.

Possible causes:

A. Blower not operating.

B. Strainer-drier plugged.

C. Expansion valve superheat setting too high.



HEADING THE SLATE of new officers of the Michigan State Association, Refrigeration Service Engineers Society, is Clare Babcock (second from right) of Flint. He succeeds Donald Renwick, (extreme left), Lansing. Other new officers are (from l. to r.) James Porter, Grand Rapids, treasurer; Forrest Holcomb, Jackson, secretary; Warren Millard, Flint, second vice president; Harvey Whitsett, Detroit, first vice president; and Robert Schoenheit, Saginaw, educational chairman. Cyrus Grinage, Martin, sergeant at arms, was absent when picture was taken.

## 120 Hear Variety of Technical Talks At Michigan RSES Meeting In Kalamazoo

KALAMAZOO, Mich. — The seventh annual convention of the Michigan State Association, Refrigeration Service Engineers Society, held April 20-22 at the Hotel Harris here, drew a near-record turnout of 120 servicemen and guests and 39 wives.

The convention opened Friday evening, April 20, with a report on du Pont's 1955 national room air conditioner survey. Survey findings were presented by Bud Richardson and Fred Fryer, of du Pont's Chicago and Indianapolis offices, respectively.

Saturday morning, the servicemen heard talks by Walter Musser, chemical engineer with the Micromet Div., Calgon, Inc.; J. A. Mulcahey, vice president in charge of sales, Bush Mfg. Co.; and Henry Michalski, sales engineer, A-P Controls Corp.

John Bopp of Ansul Chemical Co. opened the afternoon session with a talk on "Freon-22" and its problems. Paul Hunker, compressor sales supervisor, Brunner Mfg. Co., and John Yates, Brunner's Michigan district manager, tore down and reassembled a Brunner semi-hermetic compressor.

Charles Conrad, chief applications engineer of Conrad, Inc., described some of his ultra low temperature systems.

Starr Hull, executive secretary of the Air Conditioning & Refrigeration Wholesalers, was the speaker at the dinner.

Sunday morning's program included a talk by Robert Waalkes, products engineer, Hart & Cooley Mfg. Co., on design and layout of ductwork for residential air conditioning.

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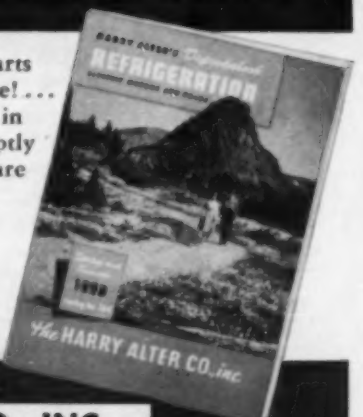
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## Hassenplug Directs Engineering at Acme

JACKSON, Mich.—Walter M. Hassenplug has been named director of engineering for Acme Industries, Inc.



Hassenplug

A graduate of Rensselaer Polytechnic Institute and a registered professional engineer (New York), Hassenplug comes to Acme with a wide background in all phases of compressor, chiller, and condenser design, and production, the announcement stated.

He began his professional career in 1937 as a student engineer with the Ingersoll-Rand Co. at Painted Post, N. Y. In 1946, he was named engineer in charge of the experimental research department working on diesel and gas engines, intercoolers, and compressors, it was explained.

Hassenplug then spent three years with Carrier Corp. as a project engineer on heavy equipment—condensers, chillers, and reciprocating compressors made by the firm.

Just prior to joining Acme, Hassenplug was associated with the Air Conditioning Div. of General Electric Co. at Fort Wayne, Ind., working as manager of hermetic motor engineering.

## Consider Federal Lab To Study Irradiated Foods

WASHINGTON, D. C.—A \$3 million Federal laboratory to test preservation of foods treated with atomic irradiations was authorized by the Joint Congressional Committee on Atomic Energy.

Site will be selected later. Funds for the project would have to be voted by each house of Congress, it was noted.

Senators Douglas and Dirksen of Illinois are seeking to have the laboratory located in their state, possibly at Argonne National Laboratory, Chicago. Sen. John Bricker of Ohio wants it to be at Ohio State university, Columbus, Ohio.

## McQuay Elects Resch To Board of Directors

MINNEAPOLIS—J. R. Resch was elected to the board of directors of McQuay, Inc. at the firm's 23rd annual stockholder's meeting here recently.

Resch is secretary of McQuay, Inc. and president of the American Automatic Ice Machine Co. of Faribault, Minn., a wholly-owned McQuay subsidiary. He succeeds P. S. Morris, retiring director.

McQuay, Inc. sells nationally, a line of heating, air conditioning, and refrigeration products manufactured in Faribault, Minn. and Grenada, Miss., it was noted.

## Typhoon Units In 1,152-Home Project--

(Concluded from Page 1, Col. 4)

coil and for a 15-in. high air intake return chamber beneath the furnace. The door of the closet fits above the air return intake grille.

To forestall installation problems, Petrone said, Typhoon provides a closet blueprint containing complete specifications so that the closet can be built in advance of the arrival of the equipment.

The blueprint, designed by Arthur Farr, Typhoon's director of application engineering, will save as much as \$200 in building costs by eliminating any need for alterations to make the closet fit the unit, Typhoon officials claim.

With the Typhoon blueprint in hand, Petrone said, sheet metal specialists can put in the housing and ducts ahead of time, electricians can locate the electrical connection in advance, and plumbers and refrigeration men can locate the gas line, refrigerant lines, and condensate drain before the unit arrives.

This "cost saver" blueprint, Petrone commented, is an integral part of Typhoon's 1956 merchandising campaign. It is Typhoon's answer to "builder resistance," which Petrone believes is slowing home air conditioning sales.

The blueprint, along with Typhoon's builders' selling kit, form a "bridge of cooperation" between the home builder, the dealer, and the manufacturer. For the first time, it indicates to the builder and his associated trades exactly how to install the central system in a home closet especially built for the purpose and do it without a hitch, Petrone declared.

"We predict that our marketing orientation, if followed by the rest of the home air conditioning industry," Petrone asserted, "will produce a minimum of 300,000 systems in 1957, as against the industry's estimate of 200,000 units, or an increase of 50%."

He added, "This Typhoon approach can contribute materially in tearing down this builder resistance since it can give the builder the 'plus' feature he was seeking three years ago without causing him the inconvenience he later encountered."

Petrone estimated that installation costs for the Barton Hills homes will run between 80 cents and \$1 per sq. ft. Variations will occur due to differences in house design, insulation, exposures, etc. The basementless houses will sell for approximately \$17,000 to \$22,000, including air conditioning.

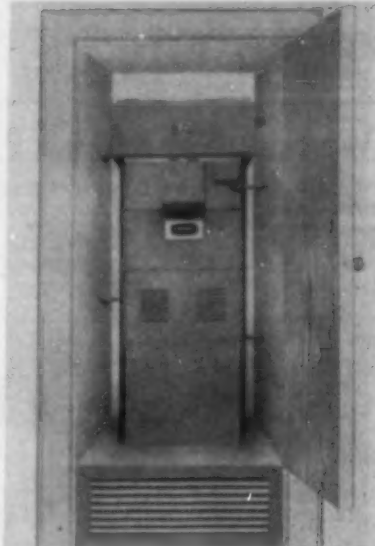
In the Typhoon cooling system, return air enters the furnace unit through a grille at the base of the closet, passes up through the furnace and cooling

coil into the duct system and out the diffusers throughout the house. Both cooling and heating is automatically controlled and can be switched over by a flick of a switch.

The cooling coil is 10 in. high. It can be slipped into the housing on top of the furnace without removing the closet door or jambs. All connections can be made right in the closet, Petrone declared.

One of the prime movers of the Barton Hills project is Shirley White, past president of the Austin Home Builders Association and a participant in the Austin Village experiment, according to Petrone. White's home in the Village was cooled by a Typhoon unit.

Barton Hills, a 535-acre tract, lies little more than a mile from the center of Austin.



TYPHOON Weather Selector, air conditioner-furnace equipment designed so that cooling coil can be slipped into housing without removing furnace or costly closet expenditures.

### Simpson TEST EQUIPMENT

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Takes up to three, 7½' thermocouple leads, general purpose or surface type. Self shielded. With one general purpose lead, battery, and operator's manual..... **\$64.50**  
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Developed for refrigeration equipment. Takes up to three, 15', general purpose Thermistor \$33.95 tipped leads. With one lead and manual....  
**Model 385 for one lead only.....\$30.00**



#### PRETESTS CURRENT CAPACITY OF ELECTRICAL LINES

**LINE-O-METER, Model 397**  
Tells whether existing house wiring is adequate for motor starting currents from 13 to 50 amperes. (Single phase, 117 V, 60 cycles)... **\$29.95**



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**AC VOLT-AMP-WATTMETER, Model 390**  
Checks line voltage, current drain, and power consumption. Four wattage ranges cover practically any appliance. With break-in plug, leads, and manual..... **\$39.50**



#### CHECKS VOLTAGE AND POWER SIMULTANEOUSLY

**AC-DC VOLT-WATTMETERS, Models 391 and 392**  
For appliance motor testing. **Model 391, 3000 watts.....\$30.00**  
**Model 392, 5000 watts.....\$35.00**



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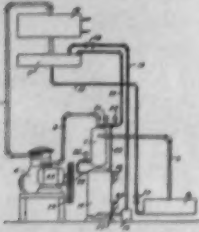
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## PATENTS

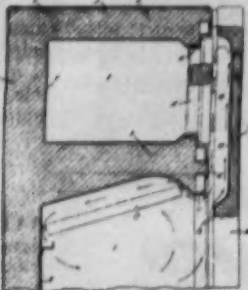
Week of November 22

**2,734,940. REFRIGERATION SYSTEM.** Harry Sloan, Waukesha, Wis., assignor to The Vilter Mfg. Co., Milwaukee, Wis., a corporation of Wisconsin. Application Oct. 25, 1952, Serial No. 316,943. 12 Claims. (Cl. 62-3.)



1. In a refrigerating system provided with a compressor having a suction line for receiving evaporated refrigerant through a separator from an evaporator and also having a discharge line for delivering liquid refrigerant to a receiver communicable with the evaporator through a high pressure refrigerant line past an expansion valve, an accumulator for collecting liquid refrigerant removed from the suction line, conduit means connecting said accumulator with the receiver and having therein a low differential pressure pump and a non-return check valve between the pump and receiver, means for effecting operation of said pump whenever the level of liquid refrigerant in said accumulator reaches a predetermined high value and for interrupting said operation when said liquid level drops to a predetermined extent, valve means for effecting equalization of the pressures in said accumulator and separator whenever said pump operation is interrupted, and other means cooperable with said valve means to establish receiver pressure within said accumulator whenever said pump is operating.

**2,734,942. MULTIPLE TEMPERATURE REFRIGERATOR CABINET.** John W. Pulaski, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application July 24, 1952, Serial No. 300,657. 5 Claims. (Cl. 62-103.)

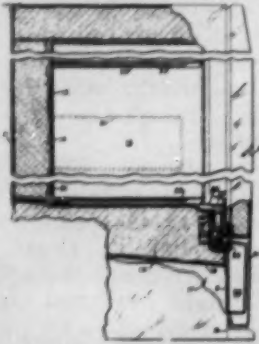


1. A refrigerator comprising a cabinet having insulated outer walls and an intermediate horizontal wall dividing the cabinet into an upper low temperature compartment and a lower fresh food storage compartment, a closure member in the front opening of said upper compartment, dehumidifying means in said lower compartment, and a door forming the front wall of said cabinet and enclosing both of said compartments, the lower portion of said door adjacent said lower compartment being insulated, and the upper portion of the inner surface of said door adjacent said upper compartment having a recess providing an air space between said door and said closure member, said recess reducing the spacing between the inner and outer surfaces of said door in the upper portion thereof thereby to cause said upper portion of said inner surface to be kept relatively warm by heat leakage from said outer surface, the lower edge of said recessed portion of said door being somewhat below the lower edge of said horizontal wall, said air space being in communication with said lower compartment whereby air within said lower compartment is caused to rise along the relatively warm recessed portion of said door and descend along the relatively cool surface of said closure member, thus transferring moisture from said closure member to said lower compartment.

**2,734,941. REFRIGERATING APPARATUS.** James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application June 13, 1952, Serial No. 293,369. 4 Claims. (Cl. 62-103.)

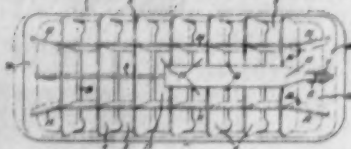
1. A refrigerator comprising in combination, a cabinet of rectangular shape having metal outer walls and a metal liner spaced therefrom and forming the top, bottom and upright back and side walls of a food storage compartment in said cabinet, insulating material in the space between said cabinet outer walls and said liner, said compartment having an access opening in the front of said cabinet, a door normally closing said compartment access opening, a closed refrigerating system associated with said cabinet, said sys-

tem including an evaporator contacting and extending along a plurality of walls of said food compartment for cooling the interior thereof, a non-



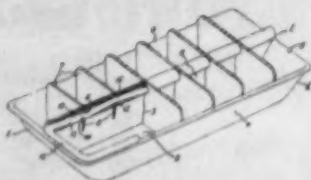
metallic pan intermediate the insulating material and said liner at the bottom of said compartment, said pan being spaced from the bottom wall of said compartment and extending continuously from a point in front of said compartment beyond its upright back and side walls into the space between said liner and said cabinet outer walls, an insulating breaker strip interposed between the front metal wall of said cabinet and the bottom wall of said compartment, said breaker strip having an opening therein communicating with the space between said pan and said compartment bottom wall, said pan having an opening therein, a non-metallic conduit having one end thereof communicating with the opening in said pan and having its other end extended through the outer front wall of said cabinet, a float valve in said conduit normally closing the same, a receptacle detachably mounted upon said cabinet front wall, said other end of said conduit communicating with the interior of said receptacle, and said food storage compartment door being projected downwardly from said compartment access opening over said receptacle for normally concealing the same.

**2,734,943. FREEZING TRAYS.** Hugh M. Stephenson and Karl M. Peierling, Fort Wayne, Ind., assignors to General Electric Co., a corporation of New York. Application Nov. 23, 1951, Serial No. 267,676. 13 Claims. (Cl. 62-108.5.)



1. In combination with a freezing tray, a grid structure for cooperating with said freezing tray to provide a plurality of ice cube forming compartments, said grid structure including a plurality of transverse separators, an operator rod extending longitudinally of said tray, said operator rod being formed to include alternate low and high crank throws, said operator rod passing through said transverse separators, longitudinal separating means effective for spacing said transverse separators on said operator rod and locating same for cooperation with said crank throws, and said crank throws being effective when said operator rod is rotated through an operating movement for moving said longitudinal separating means between said transverse separators and relatively displacing alternate transverse separators whereby each ice cube is released from all the walls included in its respective compartment.

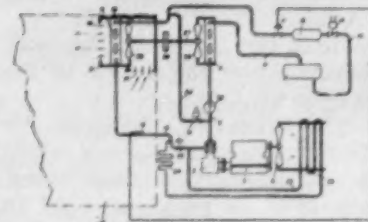
**2,734,944. FREEZING TRAY.** Alfred G. Janos and Edward H. Roberts, Erie, Pa., assignors to General Electric Co., a corporation of New York. Application Aug. 9, 1952, Serial No. 303,516. 4 Claims. (Cl. 62-108.5.)



1. In a freezing tray, a grid assembly comprising a central longitudinal divider, a plurality of transverse dividers pivotally assembled on and interlocked with said longitudinal divider to provide a plurality of ice block compartments, each of said transverse dividers including a central slot for receiving said longitudinal divider, said transverse dividers being mounted on said longitudinal divider for pivoting movement relative thereto, means including a handle pivotally mounted only on said longitudinal divider for effective relative movement of said transverse and longitudinal dividers further including a first inclined slot disposed laterally between said central slot and one end of the transverse divider and a second inclined slot disposed laterally between said central slot and the opposite end of the transverse divider, and two inclined longitudinal dividers of a uniform height substantially equal to the length of said inclined slots, one of said inclined dividers being loosely and slidably re-

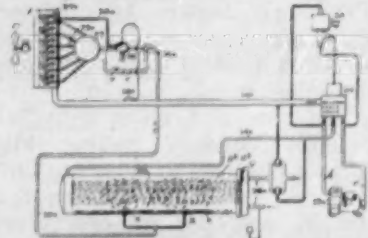
ceived in aligned first slots of said transverse dividers for subdividing a portion of said ice block compartments, and the other inclined divider being loosely and slidably received in aligned second slots of said transverse dividers for subdividing the remaining ice block compartments.

**2,734,945. DEFROSTING ARRANGEMENTS FOR REFRIGERATION SYSTEMS.** James Swinburne, Syracuse, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application Sept. 30, 1952, Serial No. 312,377. 5 Claims. (Cl. 62-115.)



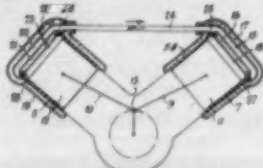
4. In a defrosting arrangement for a refrigeration system, the combination of a holdback valve in the suction line to increase evaporator pressure to a point at least corresponding to an evaporator temperature of 32° F., a re-evaporator, a capillary line connecting the re-evaporator to the suction line of the system at a point between the valve and the evaporator, means for evaporating liquid refrigerant collected in the suction line during the defrosting operation in the re-evaporator, and a line to return gaseous refrigerant from said re-evaporator to the compressor.

**2,734,946. METHOD AND MEANS FOR IMPROVING THE UTILIZATION OF VOLATILE REFRIGERANTS IN HEAT EXCHANGERS.** Charles E. Lowe, Orlando, Fla. Application April 1, 1954, Serial No. 490,395. 11 Claims. (Cl. 62-115.)



9. In combination with a reversible heat exchange system employing a volatile refrigerant, of a heat exchanger alternately acting as a condenser and as an evaporator upon reversed cycles of said system, said heat exchanger being a vertically disposed wall-enclosed chamber having two opposed sides converging upwardly from its bottom, a water spray device arranged to direct its spray onto the exterior surfaces of said inclined sides of said walls, atomizing injector nozzle means located in the bottom of said chamber and connected in said system with the high pressure liquefied refrigerant and positioned to direct the nebulized refrigerant upwardly into said chamber to impinge the walls thereof, said nozzles having an inspirator passage therein adapted to be surrounded by liquefied refrigerant accumulating on the bottom of said chamber to reatomize the same with the oncoming pressure charge of the liquefied refrigerant, said chamber having an outlet therein removed upwardly from said nozzles and connected in said system to draw gasified refrigerant therefrom as a low-pressure gas, whereby ice may be formed on said exterior inclined surfaces of said heat exchanger and may be released therefrom upon reversing the cycle of the system allowing said ice to move downwardly off said surfaces.

**2,734,948. HOT AIR ENGINES AND REFRIGERATING MACHINES.** Theodor Finkelstein, London, and Harold Heywood, Sidcup, England, assignors to National Research Development Corp., London, England, a corporation of Great Britain. Application Jan. 30, 1953, Serial No. 334,235. Claims priority, application Great Britain Feb. 3, 1952. 7 Claims. (Cl. 62-136.)



1. A hot air engine operating on a regenerative air cycle, both in its usual form as a power-producing engine and in its reversed form as a heat pump or refrigerator, in which by-pass means are provided both in connection with the heater and the cooler, of such nature that when the working fluid passes from the regenerator to the hot space and from the hot space to the regenerator it only passes through the heater once and similarly when the working fluid passes from the regenerator to the cold space and from the cold space to the regenerator it only passes through the cooler once.

(To Be Continued)

## CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

## POSITIONS WANTED

**REFRIGERATION AND** air conditioning engineer with twenty years' experience. Prefer position with commercial refrigeration and air conditioning retail distributor with large volume in super market equipment and air conditioning. Now employed but must move to warm climate due to wife's health. Prefer Southwest. Reply to BOX A5533, Air Conditioning & Refrigeration News.

**AIR CONDITIONING** administrative and sales engineer desires participating position preferably with Carrier distributor. Present position Manager of contracting division of Carrier distributor in large metropolitan area. Young, aggressive, with record of proven ability. Address reply to BOX A5534, Air Conditioning & Refrigeration News.

**CANADIAN** would like to represent American company in Canada. Capable of handling distributor organization across Dominion. Presently well established in refrigeration and air conditioning field. BOX A5535, Air Conditioning & Refrigeration News.

## POSITIONS AVAILABLE

**MAN THOROUGHLY** experienced in sales of packaged air conditioning equipment to head commercial department of well established heating and air conditioning company. Contact Mr. S. G. Braun, THE NATIONAL HEATING COMPANY, 1999 Central Avenue, Cincinnati 14, Ohio.

**ATTENTION SERVICEMEN!** Commercial refrigeration and air conditioning. In a rut? Latch on to an old established live-wire service organization. Our business is booming all year long and we need experienced journeymen. If you have any commercial service or installation experience and want to increase your earnings with a look to the future, contact now, NORTH TOWN REFRIGERATION CORPORATION, 4711 Lincoln Avenue, Chicago, Illinois.

**MANUFACTURERS' REPRESENTATIVE** with commercial refrigeration experience, now covering Michigan, Indiana, Midwestern or Southwestern states, to sell fast-growing line of commercial equipment. Write PAUL R. STEWART, 1712 John Street, Cincinnati 14, Ohio.

**DISTRICT MANAGERS (2)**—Typhoon Air Conditioning Co. has lucrative openings. If you are qualified to direct sales of packaged air conditioners in an important territory, this ad may be a major opportunity for you. Leading specialist in packaged units, with most complete, nationally advertised line in the industry. Water-cooled and air-cooled, commercial and residential, all sizes. 100% factory cooperation, with finance and warehouse plans, hard-hitting dealer promotion material. Full details required, including experience, references, etc. Your confidence will be strictly respected. Write Mark E. Mooney, TYPHOON AIR CONDITIONING, 505 Carroll Street, Brooklyn 15, N. Y.

**SALES ENGINEERS** are required by major manufacturer of air conditioning refrigeration and air handling equipment for expanded sales operation in Midwest. Travel involved. Salary, expenses, and bonus. Write giving full personal details, education, experience, and salary in first letter. Replies confidential. BOX A5513, Air Conditioning & Refrigeration News.

**DESIGN ENGINEER** for commercial refrigerators—At least 5 years' sheet metal experience—Eastern manufacturer of restaurant and market equipment—Needs top-notch man—capable of supervising model shop and assuming responsibility—Company growth makes this opportunity available. Write to BOX A5522, Air Conditioning & Refrigeration News.

**WASHINGTON, D. C.** Distributor for 19 years with large national air conditioning manufacturer is enlarging permanent staff and has several design and application engineering positions open. Applicants should submit qualification, experience and salary re-

quirements immediately to BOX A5524, Air Conditioning & Refrigeration News. All replies will be kept confidential.

**WASHINGTON, D. C.** Distributor for 19 years with large air conditioning manufacturer is enlarging permanent staff and has opening for sales engineer to develop and assist dealers. Compensation commensurate with qualifications and experience. Applicants address replies to BOX A5527, Air Conditioning & Refrigeration News. All replies held in confidence.

## EQUIPMENT FOR SALE

**200 REFRIGERATORS**, used, guaranteed in perfect operating condition. Modern, clean, complete. Attractively priced. G. E. Frig., 4 and 6 cubic ft. BEACH REFRIGERATOR COMPANY, 196-11 Northern Blvd., Flushing 58, N. Y. F1 7-6161.

**NEW SELF** contained Kesco automatic condensate water disposal pumps for air conditioners ice cube bins; at your local wholesaler. Available in 10 and 20 foot heads.

**NEW YORK**, Abco Refrigeration, 1615 Second Ave.

**MT. VERNON**, Eastern Supply, 521 East Third Street

**SYRACUSE**, Gould-Farmer Co., 1020 W. Genesee Street

**WHITE PLAINS**, County Seat, 111 Central Ave.

**NEWARK, N. J.**, Tesco Distributors, 78 Boston Street

**DAYTON, OHIO**, W. H. Kiefaber Co., Refrigeration Dept.

**SACRAMENTO, CALIF.**, Associated Refrigeration, 1717 Eye Street

**SEATTLE, WASH.**, Refrigerative Supply, 204 W. Republican

**TAMPA, FLORIDA**, Leo S. Bosage Co., 1546 Franklin Street

Distributors write to KESCO PRODUCTS CORP., Springfield Gardens 13, N. Y. for sample pump and literature.

**AIR CONDITIONING** value: 2 h.p. hermetic compressor F-12 230V. 1/phase HD200. 2 h.p. air cond. evaporator 23 1/2" L x 16" H x 3 1/2" W. 2 h.p. air cond. condenser 24" L x 24" H x 4 1/2" W. Also included 2 ton F-12 T. X. Valve & dual pressure safety cutout switch. Complete matched component kit as described \$179.50. Freight prepaid anywhere in the continental U. S. A. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

## BUSINESS OPPORTUNITIES

**WHOLESALE (CALIFORNIA)** air conditioning and refrigeration equipment and parts business. Best manufacturing names. Several exclusives. Will sell all or part this long established fast growing leader in field. Sales engineering knowledge desirable. Age, health sole reason for offer. Give complete background and financial ability in first letter. Confidence respected. BOX A5536, Air Conditioning & Refrigeration News.

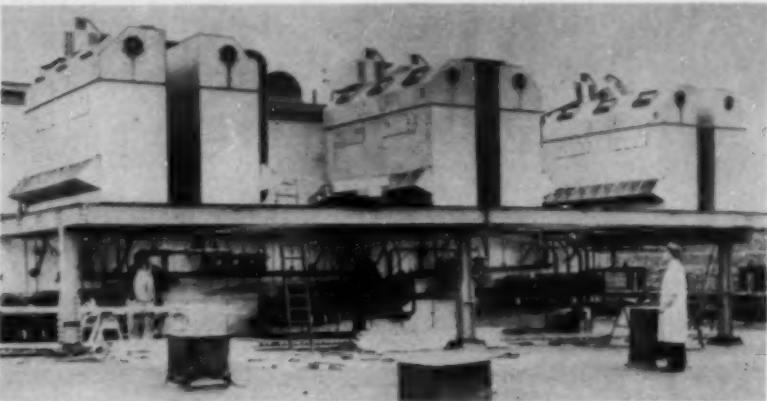
**FOR SALE**—Established, commercial refrigeration and air conditioning sales and service. Two national franchises. Unusual opportunity in a fast growing community, 16 miles from Los Angeles, Calif. Potential sales unlimited. Summer business just beginning. Very low inventory—New 20' x 60' building for sale or lease. BOX A5537, Air Conditioning & Refrigeration News.

**OWNER'S HEALTH** dictates immediate disposition of well established Distributor-Contractor operation. Refrigeration, air conditioning, heating, sheetmetal. Commercial, residential, industrial. Two of industry's most honored names under franchise. Located Southeast. One of ten top business cities. Good contracts in progress. Excellent potential. Substantial cash payment, balance terms to qualified person. Reply giving background and financial status. BOX A5538, Air Conditioning & Refrigeration News.

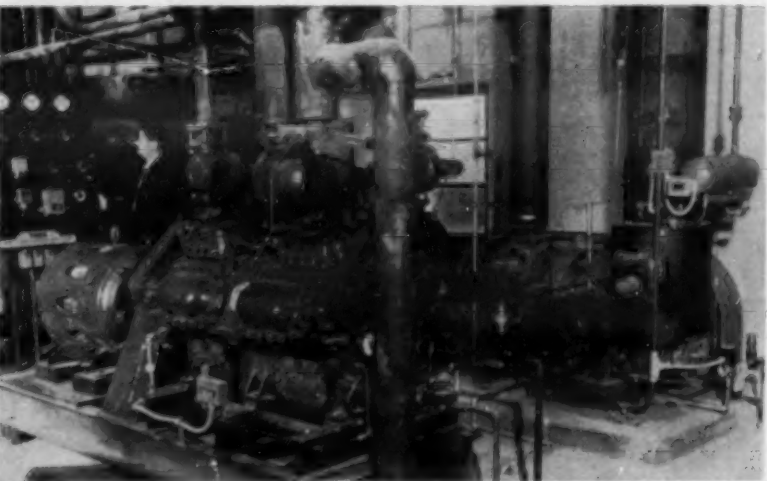
## MISCELLANEOUS

**"SEALED UNIT** Rebuilding-Basic Tools & Methods"—an instructive copyrighted manual giving complete details on economically equipping your shop to handle hermetic rebuilding. Exclusive trade secrets unavailable elsewhere. Mail postcard for descriptive folder. H. W. CUSTER, P. O. Box 98, Center Line, Michigan.

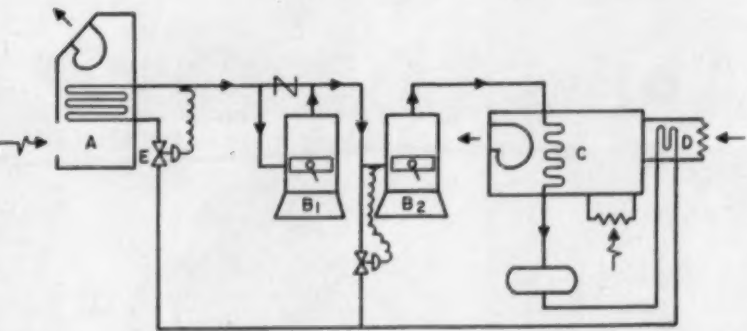




SIX UNITS resting on structural steel dunnage do double duty in York's new compound compression heat pump system. In winter, these units serve as air coolers, while in summer they act as evaporative condensers. During below freezing weather, specially designed refrigerating coils inside these units cool the frigid air to still lower temperatures.



RECIPROCATING compressor (foreground) for high stage operation and rotary low stage compressor form one of the three York compound compression heat pump systems in the Heironimus Dept. store. Each system has its own gauge board which indicates refrigerant pressures.



SCHEMATIC DIAGRAM of two-stage compression heat pump system with liquid sub-cooling.

### Coefficient of Performance\*

Evaporator Temperature	1 Stage Without Subcooling	1 Stage With Subcooling	2 Stage With Intercooling	2 Stage With Subcooling
-40°	...	...	2.16	2.69
-30°	1.55	1.77	2.34	2.96
-20°	1.95	2.30	2.60	3.25
-10°	2.27	2.73	2.81	3.56

\*Compressors only.

## York's New Heat Pump System--

(Concluded from Page 1)

department store and another is being installed in a new office building.

The Heironimus department store in Roanoke, Va. completed the first installation last month. The Ballinger building in Philadelphia, new home of the Ballinger Co., architectural and engineering firm, will be completed in June.

Although York is supplying the new heat pump to industrial and commercial buildings at the present time, Serfass said, the company's research and engineering departments are currently working on the miniaturization of the system into packaged units to make home use practical at some future date.

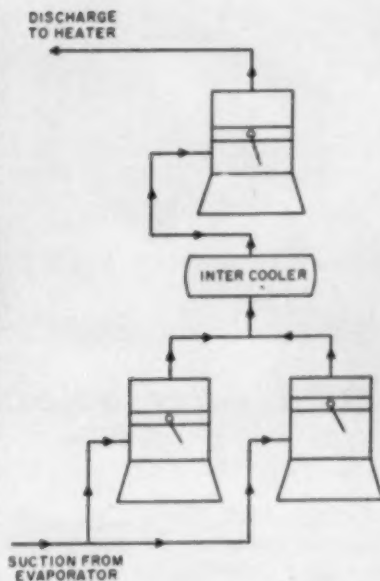
If this work progresses satisfactorily, he asserted, there is a possibility that a practical and

economically feasible heat pump system could be ready for home heating and cooling some time in 1957.

According to Serfass, York's new development does away with the need for a water source or supplementary heating by making use of compound compression, which has been used for years to achieve economically the extremely low temperatures used in ice cream plants and the frozen foods industry.

He credited Robert G. Werden, a 40-year-old York sales engineering executive, with first applying the compound compression principle to the air source heat pump.

In the York system, thermostatically controlled valves guide the hot or cold water flow in and out of the system while the compressors automatically move from single stage compression



COMPOUND, or multi-stage, compression, shown above in a schematic diagram, is used in York's new heat pump system to lower compression ratios and increase output during very cold weather, thus providing comfort heating of a building without the use of supplementary heating. The new York compound compression heat pump system automatically switches from single stage compression to compound compression when outside temperature drops.

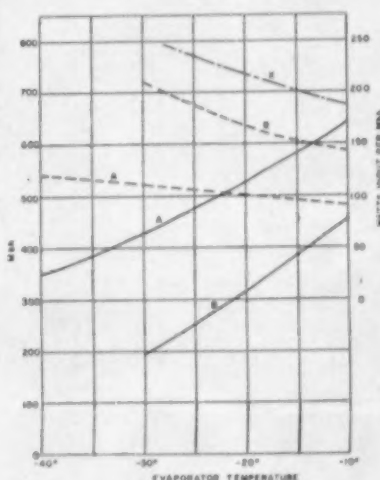


CHART prepared by York shows heat produced and wattage expended by new heat pump system as compared to conventional single stage systems. At -20° F. evaporator temperature, solid line A, representing York compound compression system, produces 67½% more heat than solid line B (conventional system). At the same time, new York system (dotted line A) while producing 1,000 B.t.u. per hour at 110° condensing temperature for 100 watts (compressor only), is using far less energy than is a single stage system, represented by dotted line B, which uses 167 watts. If the single stage system were to be supplemented by direct electrical strip heat to produce the equivalent heat output represented by scheme A, the total watt input would be about 230 watts, shown by dotted line X.

into compound compression when the temperature drops below a certain point.

The York heat pump, Serfass explained, can remove heat from 0° F. outside air while cooling this air to still lower temperatures as it passes over specially designed coils.

The heat removed by the refrigerant from the outside air, is elevated to a usable temperature level by the compression cycle. This heat can be used to produce hot water which can be circulated throughout the building in an indirect system, or the hot refrigerant can be used directly in coils to provide forced warm air heating through either a central unit or multiple units.

During warm weather, conversely, the expansion of the refrigerant as it turns from liquid to gas extracts heat from the circulated water. The resulting chilled water is piped to the same coils and cools air blown

through these designed coils. stage system which would use York claims that at -20° F. 167 watts.

Furthermore, the company compound compression system says, if the single-stage system produces 67½% more heat than were supplemented by direct a single-stage system. At the electrical strip heat to produce the equivalent heat output, the same time, while producing the total watt input of the single-stage system plus the strip (compressor only), it is using heater raises the input to about far less energy than is a single 230 watts.

## Government Contracts

### SYNOPSIS OF PROPOSED PROCUREMENT

#### ARMY

Purchasing and Contracting Office, Bldg. 29, Fort McPherson, Ga. Furnish all plant labor, appliances, equipment, materials, and perform all work complete required for INSTALLATION OF AIR CONDITIONING UNITS, COOLING TOWERS, concrete pad, electric, plumbing, heating, and duct systems in Post Chapel Bldg. T-1218, Ft. McPherson—Job—IFB DA-09-177-SS-56-3 B—Bid Opening 24 May 56.

Purchasing and Contracting Office, Redstone Arsenal, Huntsville, Ala. AIR CONDITIONING BLDG. 491—Job—IFB ORD-01-021-56-574B—Bid Opening 15 May 56.

Galveston District, Corps of Engineers, P. O. Box 1229, Galveston, Texas. AIR CONDITIONING MAIN HOSP. BLDG., Brooke Army Medical Center, Tex., consisting of 500-ton air cond. system, excavation and construction of equipment room and cooling tower—Job—IFB ENG-41-243-56-20B—Bid Opening 21 June 56.

Purchasing and Contracting Office, Fort Eustis, Va. AIR CONDITIONING SYSTEM for Building S-818, Fort Eustis, Va.—Job—IFB 44-019-56-138—Bid Opening 10 May 56.

#### NAVY

District Public Works Office, Fourth Naval District, Bldg. No. 1, Second Floor, Naval Base, Philadelphia, Pa. REPLACE AIR CONDITIONING UNIT Ward T5 Bldg. Nr 44 Naval Hospital, Philadelphia. \$10 deposit required for plans and specs.—Job—IFB 4715/56B—Bid Opening 8 May 56.

District Public Works Office, Naval Station, San Juan, Puerto Rico. COLD STORAGE BUILDING HOUSING UNITS AND SWIMMING POOL, Naval Base, Guantanamo Bay, Cuba—Job—IFB 1420-56—Bid Opening 5 June 56. Bid Data Deposit \$200.

District Public Works Office, Sixth Naval District, Naval Base, Charleston, S. C. COLD STORAGE BUILDING, Naval Air Station, Cecil Field, Fla. Fifteen dollars deposit required for plans and specs.—Job—IFB 45726(Rev)—Bid Opening 17 May 56.

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C. Attn: SPF-1A.

FANS, CENTRIFUGAL, with spraytight fan cooled motors, various sizes and types, per Spec. MIL-F-19004(Ships) dated 30 Aug. 1955 as modified in invitation. The material under this specification is of a type on the Qualified Products List 3-129 ea.—IFB 600-1263-56-8—Bid Opening 25 May 56.

Officer in Charge of Construction, Ninth Naval District Building 1-A, Great Lakes, Ill.

RELOCATION OF AN EXISTING PACKAGE TYPE AIR CONDITIONER; PROVISION OF NEW COMPRESSOR UNIT, New Duct and Fresh Air Intake; certain alterations to an existing Window and Door; Electrical work and field painting. Work located at the Naval Hospital, Great Lakes, Ill.—Job—IFB 1291/56—Bid Opening 7 May 56.

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C. AIR CONDITIONING UNIT, Model Nr 2-25 ea.—IFB 600-1603-56—Bid Opening 21 May 56.

Navy Purchasing Office, 4th & Independence Ave., Washington, D. C. Attn: SPF-1A.

The following items procured are under IFB 600-1289-56-8—Bid Opening 20 May 56.

CONDENSING UNIT, REFRIGERATING, non-magnetic, ¼ ton cap., air-cooled 115 volts, D.C., 10 ea.—WATER CHILLERS with controls, 5 ea. per Spec. Ships R-2322 dated 23 March 56. (NOTE: The Material called for under this specification is of a type on the Navy Qualified Product List.)

#### AIR FORCE

Purchasing and Contracting Office, McConnell Air Force Base, Wichita, Kans. INSTALLATION OF AIR CONDITIONING of Bldg. Nr 197, McConnell Air Force Base, Wichita, Kans.—Job—IFB 14-614-56-36B—Bid Opening 28 May 56.

#### GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 2, Business Service Center, 250 Hudson St., New York 13, N. Y.

INSTALLATION OF AIR CONDITIONING in Court Rooms No. 1 and 2 at U. S. Post Office and Courthouse, Newark, N. J.—Job—IFB-2PC-6-1518 (ADVT)—Bid Opening 5-2-56.

General Services Administration, Region 3, Business Service Center, 7th and D Sts., S.W., Washington 25, D. C.

AIR CONDITIONING UNITS, PORTABLE, window mounted, Air-cooled, ½ hp., 8,000 B.t.u. Capacity—Definite Quantity, 50 ea., Optional quantity (if and when required) for period ending 9-15-56—50 ea.—IFB R2-D-74766-R—Bid Opening 5-8-56.

General Services Administration, Region 7, Business Service Center, 114 Commerce, Dallas, Texas.

AIR CONDITIONING X-Ray Dept. & Physical Therapy, Public Health Service Hospital, Galveston, Texas—Job—IFB CR-7563-308—Bid Opening 5-15-56.

General Services Administration, Business Service Center, Region 3, 7th and D Sts., S.W., Washington, D. C.

AIR CONDITIONING LABORATORY, 1776 Pennsylvania Avenue, Washington, D. C.—Job—IFB GS-R3-B-4626—Bid Opening 5-15-56.

General Services Administration, Region 7, Business Service Center, 114 Commerce, Dallas, Texas.

REPLACEMENT OF REFRIGERATION PLANT FOR DRINKING WATER, Court House, New Orleans, La.—Job—CR7563-288—Bid Opening 5-22-56.

General Services Administration, Region 5, U. S. Courthouse, 219 S. Clark St., Chicago, Ill.

REFRIGERATORS, Fed. Spec. AA-R-211c and Amend. No. 1-17 ea.—BLOOD BANK TYPE-1 ea.—IFB CHD-1084—Bid Opening 5-17-56.

### CONTRACTS AWARDED THROUGH MAY 1, 1956

District Public Works Office, Eleventh Naval District, San Diego 32, Calif. Rehabilitation of Heating and Cooling Systems, Marine Corps Supply Center, Barstow, Calif., Contract NOY-93210 (IFB 51317B)—Job—\$32,591—Main Cornice Works, Inc., 2824 N. Main St., Los Angeles, Calif.

Air Force Missile Test Center, Patrick Air Force Base (ABDC), Fla. Services and Materials for Air Conditioning Buildings No. 536 and 537. (IFB No. 08-606-56-96)—Job—\$48,443—A. Belanger & Sons, Inc., 173 Harvey St., Cambridge, Mass.

General Services Administration, Region 5, 575 U. S. Courthouse, 219 South Clark St., Chicago, Ill.

Partial Interim Air Conditioning for Court, U. S. Post Office and Courthouse, Hammond, Ind.—Job—\$14,853—Murphy & Miller, Inc., 1226 S. Michigan Ave., Chicago, Ill.

Quartermaster Purchasing Agency, Columbus General Depot, Columbus 15, Ohio.

Frozen Food Cabinet, (Upright Freezer) (DA23-081-QM-19260)—3,850 ea.—\$656,645—Ranney Refrigerator Company, E. Congress Street, Greenville, Mich.

U. S. Navy Purchasing Office, Naval Supply Center, Norfolk 11, Va.

Air Conditioning System, Neg. #291—one (1) ea.—\$45,150—Cox-Frank Corp., 5527 Virginia Beach Blvd., Norfolk, Va.

Office of the Contracting Officer, 2585th Air Reserve Flying Center, Miami International Airport, Miami, Fla.

Air Condition Dispensary Building T-90, Contract No. (AF 08(605)-123)—Job—\$10,939—Miami Air Conditioning Co., 759 NE 79th St., Miami, Fla.



## Royal Oak May Require Water Saver On Water Cooled Systems over 3 Tons

ROYAL OAK, Mich.—A proposed city ordinance that will require a water conservation device on all water-cooled air conditioning and refrigeration systems exceeding 3 tons capacity is expected to get final action by the Royal Oak City Commission on Monday evening, May 6.

City officials held back the ordinance last week in order to include water demand rates in conformity with those expected to be charged by the city of Detroit, from which Royal Oak gets a large share of its water supply.

The Detroit Water Board is considering a demand charge of \$5 per ton on "water wasting" air conditioning equipment starting the first of next year, increasing it to \$10 in 1958 and \$15 in 1959.

### April 1, 1957 Deadline For Existing Units To Add Water Saver

The Royal Oak ordinance, as now written, however, requires that existing equipment not equipped with a water conservation device, must install one before April 1, 1957, if capacity exceeds 3 tons.

The water conservation device, the ordinance says, shall have sufficient capacity so that when the equipment is operating under full load conditions at maximum summer temperature it shall use no more water for make-up than is specified in the following table:

#### MAXIMUM ALLOWABLE WATER USE

Water Hardness ppm.	Max. Use g.p.m./ton
0-139	0.1
140-199	0.15
200-254	0.2
255-339	0.3
340-424	0.4
425 and over	0.5

George Nampa, city engineer, said that this chart was taken from a model ordinance prepared by the committee on water use in refrigeration and air conditioning of the American Water Works Assn. The model ordinance was published in 1950.

### Permit Required For All Equipment

The proposed ordinance will also require that all water-cooled air conditioning and refrigeration equipment of whatever size have a permit for operation. For existing equipment, this permit will cost \$5. For equipment installed after the effective date of the ordinance (20 days after passage), the fee will be \$5 plus 50 cents per ton.

Equipment owners will be given 60 days to apply for their

### Detroit ASRE Will Elect Officers May 7

DETROIT—Election of officers and program planning for 1956-57 are scheduled for the May 7 meeting of the Detroit section of the American Society of Refrigerating Engineers.

The meeting will begin at 8 p.m. in the Rackham Bldg., Woodward at Farnsworth.

permits. The permits are good indefinitely, unless suspended or revoked by the city manager.

### Failure To Comply with Specific Rules Means Permit Revocation

He can suspend permits for failure to comply with requests to discontinue using water during an emergency, where alterations of improper operation creates a hazard to the water supply or unnecessarily wastes water, or if water use exceeds the maximum quantities permitted.

Failure to correct these conditions can result in revoking the permit and also a fine of up to \$100 or 90 days imprisonment or both.



VISUAL AIDS and actual practice at installation and servicing were in order for 164 dealer salesmen who recently completed Hardware Products Co.'s basic refrigeration training program at Sterling, Ill.

## 164 Dealer Salesmen End Basic Refrigeration Training Program

STERLING, Ill. — A basic L. Mattison, application and training program for 164 dealer salesmen covering air conditioning fundamentals, basic refrigeration cycle, application and layout, installation, and service over an eight-week period.

Under the direction of Argo

Then four all-day meetings were held here at the company's headquarters.

## First Tri-Purpose Bldg. To Be Air Conditioned 24-Hours Daily In Miami

MIAMI, Fla. — A triple-purpose structure containing 100,000 sq. ft. of office space, 100,000 sq. ft. of products display space, and a 301-room hotel being built in downtown Miami at a cost of \$10 million.

DuPont Plaza Center, facing Biscayne Bay at the entrance to the Miami river, said to be the first 3-purpose structure of its kind, will be completely air conditioned 24 hours daily.

Innovations of the project, conceived by a group of local businessmen, include solar shades, soundproof walls and ceilings, and acoustical walls.

Ground was broken May 2. First unit is expected to be ready for occupancy by Jan. 1.



## ROYAL-AIRE a distinctive conditioner featuring UNARCO "pump-down" control system

It is doubtful that any air conditioner can match the efficiency and beauty of the UNARCO ROYAL-AIRE. This all-new conditioner provides "just right" cooling comfort, adding distinction to any setting.

Oversize cooling coils... accessible, hermetic motor-compressor units... and the exclusive UNARCO "pump-down" control system, which prevents compressor damage... are but a few outstanding features of the ROYAL-AIRE line.

Available in five capacities (3 to 15-ton) the ROYAL-AIRE is balance-engineered! This insures

full cooling capacities and quiet operation under all conditions, producing a pleasurable climate and atmosphere for any size room.

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Ask about Dyna-Pac featuring both economy and efficient long life. Another packaged unit by UNARCO (R), also pre-wired and pre-piped for easy installation. 2-, 3-, 5-ton models, water- or air-cooled!